

 RAND McNALLY

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**UNIX Resident MileMaker<sup>®</sup>**

# MILEMAKER<sup>®</sup>

**User Manual**



# UNIX Resident MileMaker®

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# MILEMAKER®

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## User Guide

© Rand McNally & Company  
8255 North Central Park Avenue  
Skokie, IL 60076-2970  
Phone: (800) 234-4069  
[www.trucking.randmcnally.com](http://www.trucking.randmcnally.com)



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# Table of Contents

- Chapter 1 - Installation ..... 1**
  - Introduction..... 2**
  - System Requirements..... 2**
  - Environment Variables..... 2**
  - Modifying the Print Command ..... 6**
  - Cities File ..... 7**
  - Installation Instructions ..... 8**
  - Update Installation Instructions ..... 9**
    - Before you begin ..... 9**
    - Installation ..... 9**
    - Router Process Start Up..... 13**
    - Running Main Program..... 13**
    - The Application Communication Area (ACA)..... 14**
  
- Chapter 2- Start-Up and Shut-Down Procedures ..... 15**
  - Starting the UNIX Resident MileMaker Application ..... 16**
  - MileMaker Start-Up Screen..... 17**
  - Access Problems..... 17**
  - Creating the User ID and Password ..... 19**
  - Start-Up Procedure ..... 20**
  - Shut-Down Procedure ..... 20**
  
- Chapter 3 - Master Menu..... 21**
  - The Master Menu..... 22**
  
- Chapter 4 - Data Entry..... 23**
  - Introduction..... 24**
  - Mileage/Routing Requests ..... 24**
  - The Browse Feature..... 26**
  - The Editing Feature ..... 27**
  - State and Provincial Abbreviation Lists ..... 28**
  - Changing Toll Road Usage on Practical Route Inquiries ..... 28**
  
- Chapter 5 - HHG Mileage Retrieval..... 31**
  - Introduction..... 32**
  - HHG Mileage Inquiry Option ..... 33**
  - Mileage Inquiry Option with Route Optimization (optional)..... 34**
  - HHG Single Origin / Multiple Destination Inquiry Option..... 35**
  - Mileage Calculations ..... 36**
  
- Chapter 6 - HHG Route Retrieval..... 39**
  - Introduction..... 40**
  - Audit Route Only Option ..... 40**
  - State Mileage Breakdown Only Option ..... 41**

<b>HHG Full Route with State Mileage Breakdown</b> .....	<b>42</b>
<b>Chapter 7 - Practical Route Retrieval</b> .....	<b>43</b>
<b>Introduction</b> .....	<b>44</b>
<b>Practical Route Only Option</b> .....	<b>44</b>
<b>State Mileage Breakdown Option</b> .....	<b>45</b>
<b>Practical Route With State Mileage Breakdown Option</b> .....	<b>46</b>
<b>Practical Mileage Inquiry Option</b> .....	<b>47</b>
<b>Chapter 8 - System Maintenance</b> .....	<b>49</b>
<b>Introduction</b> .....	<b>50</b>
<b>System Maintenance Screen</b> .....	<b>51</b>
<b>Zero Miles Processing</b> .....	<b>52</b>
<b>Green Band Processing</b> .....	<b>53</b>
<b>Canadian Border Processing</b> .....	<b>53</b>
<b>ZIP Code Processing</b> .....	<b>54</b>
<b>User-Defined Locations/Routes</b> .....	<b>56</b>
<b>Password Maintenance</b> .....	<b>60</b>
<b>Monitoring the Transaction Level</b> .....	<b>62</b>
<b>Screen Definitions</b> .....	<b>63</b>
<b>Updating the Transaction Level</b> .....	<b>65</b>
<b>Avoid/Prefer Route</b> .....	<b>67</b>
<b>Display/Reset Avoided Segments</b> .....	<b>69</b>
<b>Display/Reset Preferred Segments</b> .....	<b>71</b>
<b>Newfoundland Abbreviation</b> .....	<b>73</b>
<b>Chapter 9 - Application Communication Area</b> .....	<b>75</b>
<b>Introduction</b> .....	<b>76</b>
<b>Named Pipes ACA (Version 1)</b> .....	<b>77</b>
<b>The Non-Named Pipe Version (Version 2)</b> .....	<b>81</b>
<b>Communication Between Client's Application and ACA</b> .....	<b>82</b>
<b>TCP/IP ACA (Version 3):</b> .....	<b>83</b>
<b>Chapter 10 - Record Formats</b> .....	<b>87</b>
<b>Record Formats</b> .....	<b>88</b>
<b>Description of All Request Types</b> .....	<b>88</b>
<b>The Request File Structure</b> .....	<b>89</b>
<b>Chapter 11 - Error Codes</b> .....	<b>99</b>
<b>Error Codes</b> .....	<b>100</b>
<b>Chapter 12 - Request/Answer Examples</b> .....	<b>105</b>
<b>Request/Answer Examples</b> .....	<b>106</b>
<b>HHG Mileage Inquiry</b> .....	<b>106</b>
<b>Single Origin Multiple Destination Inquiry</b> .....	<b>107</b>
<b>Optimization Inquiry; No Destination Specified</b> .....	<b>108</b>
<b>Optimization Inquiry; Round Trip is Specified</b> .....	<b>109</b>
<b>Optimization Inquiry; Specific Destination Oak Park, IL</b> .....	<b>110</b>
<b>HHG Audit Route Inquiry</b> .....	<b>111</b>
<b>HHG State Mileage Breakdown Only Inquiry</b> .....	<b>112</b>
<b>Full HHG Route with State Mileage Breakdown Inquiry</b> .....	<b>113</b>
<b>Practical Route Only Inquiry</b> .....	<b>114</b>

<b>Practical State Mileage Breakdown Only Inquiry.....</b>	<b>115</b>
<b>Practical Route with State Mileage Breakdown Inquiry .....</b>	<b>116</b>
<b>Practical Route Miles Only Inquiry.....</b>	<b>117</b>



# INSTALLATION



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## Chapter Contents

<b>INTRODUCTION</b> .....	<b>2</b>
<b>SYSTEM REQUIREMENTS</b> .....	<b>2</b>
<b>ENVIRONMENT VARIABLES</b> .....	<b>2</b>
<b>MODIFYING THE PRINT COMMAND</b> .....	<b>6</b>
<b>CITIES FILE</b> .....	<b>7</b>
<b>INSTALLATION INSTRUCTIONS</b> .....	<b>8</b>
<b>UPDATE INSTALLATION INSTRUCTIONS</b> .....	<b>9</b>
<b>Before you begin</b> .....	<b>9</b>
<b>Installation</b> .....	<b>9</b>
<b>Router Process Start Up</b> .....	<b>13</b>
<b>Running Main Program</b> .....	<b>13</b>
<b>The Application Communication Area (ACA)</b> .....	<b>14</b>

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## Introduction

Before you begin the installation procedure for the UNIX Resident MileMaker application, it is advisable to assemble information about the system configuration of the host. Please note the following technical requirements:

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## System Requirements

### Operating Systems

- SCO OpenServer 5.0.7
- SCO UnixWare 7.1
- IBM AIX 5.2
- HP HP-UX 11i
- Sun Solaris 10
- Enterprise Linux Red Hat 4
- Linux SUSE Enterprise Server 10

Call Rand McNally & Company Customer Service at (800) 234-4069 for details regarding compatibility with other hardware and UNIX operating systems.

### Hard Disk Storage

- Requires approximately 80 - 90 MB minimum on one processor
- Requires 10,000 blocks for swap space

### RAM

- Requires 9 - 12 MB minimum on one processor

---

## Environment Variables

The user environment is a collection of information about a user. The environment is stored in special “Environment Variables” which can be assigned character values. These variables are automatically made available to applications and commands which are invoked by the user. MileMaker will utilize the environment variables to assign file names.

In preparation for this installation, each user should have the following environment variables list added to their current environment. Even remote users of MileMaker will need these variables.

NETWORK\_PATH=/usr/micro/g19/data/network.19  
DATA\_FILE\_PATH=/usr/micro/g19/data/geo.19  
STATE\_IND\_PATH=/usr/micro/g19/data/stateidx.19  
SPLC\_IND\_PATH=/usr/micro/g19/data/splcindx.19  
CITY\_IND\_PATH=/usr/micro/g19/data/cityindx.19  
SECMLG\_PATH=/usr/micro/g19/data/secmlg.19  
SECRTE\_PATH=/usr/micro/g19/data/secrte.19  
SECHWY\_PATH=/usr/micro/g19/data/sechwy.19  
SECSTAT\_PATH=/usr/micro/g19/data/secstat.19  
WINDOCP\_PATH=/usr/micro/g19/data/prachitc.19  
WINDOP\_PATH=/usr/micro/g19/data/prachit.19  
WINDOS\_PATH=/usr/micro/g19/data/shorthit.19  
WINDOCP48\_PATH=/usr/micro/g19/data/prachitc48.19  
WINDOP48\_PATH=/usr/micro/g19/data/prachit48.19  
WINDOS48\_PATH=/usr/micro/g19/data/shorthit48.19  
ABBREV\_TBL\_PATH=/usr/micro/g19/data/abbrev\_tbl.dat  
MISC\_PATH=/usr/micro/g19/data/misc\_file.dat  
LONLAT\_FILE\_PATH=/usr/micro/g19/data/lonlat.19  
LONLAT\_INDEX\_PATH=/usr/micro/g19/data/llindex.19  
SYS\_USER\_PATH=/usr/micro/g19/data/sys\_user.dat  
SYS\_DATE\_PATH=/usr/micro/g19/data/sys\_date.file  
ZIP\_FILE\_PATH=/usr/micro/g19/data/zipfile.19  
ZIP\_INDEX\_PATH=/usr/micro/g19/data/zipindex.19  
USER\_CONV\_PATH=/usr/micro/g19/data/user\_19.bin  
USAGE\_PATH=/usr/micro/g19/data/usage.txt  
DISP\_REPORT\_PATH=/usr/micro/g19/data/d\_report.txt  
BAD\_SPLCS\_PATH=/usr/micro/g19/data/splclist.19  
CORP\_CODE\_PATH=/usr/micro/g19/data/corpcode.19  
KEY\_SPLC\_PATH=/usr/micro/g19/data/goodsplc.19  
BAD\_MIL\_PATH=/usr/micro/g19/data/milspc.19  
MIL\_MILES\_PATH=/usr/micro/g19/data/milmiles.19  
HOT\_LINE\_PATH=/usr/micro/g19/data/hotline.19  
GEOX\_FILE\_PATH=/usr/micro/g19/data/geoaux.19  
MINI\_USER\_PATH=/usr/micro/g19/data/mini\_user.dat  
MINI\_ACCT\_LOG\_PATH=/usr/micro/g19/data/mini\_acct.log  
BATCH\_PATH=/usr/micro/g19/data/batch.file  
HHG\_TEST\_PATH=/usr/micro/g19/data/hhgin\_xx  
HHG\_ANS\_PATH=/usr/micro/g19/data/hhgout\_xx  
SCREEN\_PATH=/usr/micro/g19/screen.tmp

MAINT\_PATH=/usr/micro/g19/sys\_maint.bin  
ROUTPROC\_EXE=/usr/micro/g19/exe/routproc  
LONGNAME\_EXE=/usr/micro/g19/exe/long\_name  
DEMON\_EXE=/usr/micro/g19/exe/demon  
MILEMAKER\_EXE=/usr/micro/g19/exe/milemaker  
ERROR\_LOG\_PATH=/usr/micro/g19/data/error.log  
LONGNAME\_LOG\_PATH=/usr/micro/g19/data/longname.log  
TASKROUT\_LOG\_PATH=/usr/micro/g19/data/taskrout.dat  
TASKSCRN\_LOG\_PATH=/usr/micro/g19/data/taskscrn\_xx  
DEMON\_LOG\_PATH=/usr/micro/g19/data/demon.log  
SERVER\_LOG\_PATH=/usr/micro/g19/data/server.log  
TRASH\_DISK\_PATH=/usr/micro/g19/used\_disk  
COUNTIES\_PATH=/usr/micro/g19/data/counties  
ONLINE\_EXE=/usr/micro/g19/exe/intf\_online  
INTERFACE\_EXE=/usr/micro/g19/exe/interface  
NOIF\_EXE=/usr/micro/g19/exe/milemaker  
PARMFILE\_PATH=/usr/micro/g19/data/parm.dat  
SHORT\_LOCATOR\_PATH=/usr/micro/g19/data/shortloc.19  
PRAC\_LOCATOR\_PATH=/usr/micro/g19/data/pracloc.19  
READER\_LOG\_PATH=/usr/micro/g19/data/reader.log  
SERIAL\_PORT=/dev/tty1a  
NAMES\_LOG\_PATH=/usr/micro/g19/data/names.log  
ALIAS\_PATH=/usr/micro/g19/data/alias.dat  
TEMP\_PATH=/usr/micro/g19/data/alias.tmp  
AVOID\_PATH=/usr/micro/g19/data/avoid.dat  
PREFER\_PATH=/usr/micro/g19/data/prefer.dat  
AVPR\_TEMP\_PATH=/usr/micro/g19/data/avpr\_temp.dat  
TWINAX\_FILE=/dev/tw00  
CLIENT\_LOG\_PATH=/usr/micro/g19/data/request.log  
OPTION\_PATH=/usr/micro/g19/data/options.dat  
ENABLE\_PATH=/usr/micro/g19/data/enable.dat  
APPL\_EXE=/usr/micro/g19/exe/client\_app  
RAND\_ACA=/usr/micro/g19/exe/aca  
START\_LOG\_PATH=/usr/micro/g19/data/start\_urmm.log  
EXEPATH=/usr/micro/g19/exe  
INCLUDE=/usr/micro/g19/include  
CPOSTAL\_FILE\_PATH=/usr/micro/g19/data/cnpostal.19  
CPOSTAL\_INDEX\_PATH=/usr/micro/g19/data/cnpostli.19  
NAMED\_PIPE\_TO\_SERVER=/usr/micro/to\_server  
NAMED\_PIPE\_FROM\_SERVER=/usr/micro/from\_server

```

G_BLKs=11061
STATE_IND=97
LP_OPTION=0
PRINT_CMD=/usr/bin/lp

export NETWORK_PATH DATA_FILE_PATH STATE_IND_PATH
SPLC_IND_PATH CITY_IND_PATH SECMLG_PATH SECRTS_PATH
SECHWY_PATH WINDOP_PATH WINDOS_PATH ABBREV_TBL_PATH
MISC_PATH SYS_USER_PATH SYS_DATE_PATH USER_CONV_PATH
USAGE_PATH DISP_REPORT_PATH BAD_SPLCS_PATH
CORP_CODE_PATH KEY_SPLC_PATH BAD_MIL_PATH
READER_LOG_PATH SERIAL_PORT NAMES_LOG_PATH ALIAS_PATH
TEMP_PATH TWINAX_FILE

export MIL_MILES_PATH HOT_LINE_PATH GEOX_FILE_PATH
MINI_USER_PATH MINI_ACCT_LOG_PATH BATCH_PATH
HHG_TEST_PATH HHG_ANS_PATH SCREEN_PATH MAINT_PATH
ROUTPROC_EXE LONGNAME_EXE DEMON_EXE MILEMAKER_EXE
ERROR_LOG_PATH LONGNAME_LOG_PATH TASKROUT_LOG_PATH
TASKSCRN_LOG_PATH DEMON_LOG_PATH G_BLKs STATE_IND
LP_OPTION COUNTIES_PATH TRASH_DISK_PATH ONLINE_EXE
INTERFACE_EXE NOIF_EXE PARMFILE_PATH SHORT_LOCATOR_PATH
PRAC_LOCATOR_PATH

export CLIENT_LOG_PATH APPL_EXE RAND_ACA START_LOG_PATH
EXEPATH INCLUDE PRINT_CMD

export ZIP_FILE_PATH ZIP_INDEX_PATH SECSTAT_PATH
SERVER_LOG_PATH

export AVOID_PATH PREFER_PATH AVPR_TEMP_PATH ENABLE_PATH
WINDOCP_PATH LONLAT_FILE_PATH LONLAT_INDEX_PATH

export CPOSTAL_FILE_PATH CPOSTAL_INDEX_PATH

export WINDOP48_PATH WINDOCP48_PATH WINDOS48_PATH

export NAMED_PIPE_TO_SERVER NAMED_PIPE_FROM_SERVER

```

---

**Note:** These paths assume the user has loaded the MileMaker software into directory: **/usr/micro**. If another path is used, please replace **/usr/micro** with the appropriate path name.

---



---

## Modifying the Print Command

If another print command is to replace the default lp command, the PRINT\_CMD environment variable must be modified and exported before starting UNIX Resident MileMaker. For example, if the /usr/bin/enq command will replace the /usr/bin/lp command for printing, type the following from the Korn or Bourne shell command line:

```
PRINT_CMD=/usr/bin/enq;export PRINT_CMD
```

The enq command will then replace the default lp print command for this example. If another print command is to be used on a permanent basis, the PRINT\_CMD variable in the profile.19 file may be edited to make the change permanent.

---

## Cities File

The cities file, cities.19, lists all the cities in the product. This file can be found in the directory /usr/micro/g19 if you install Unix Resident MileMaker in /usr/micro. If you install the product in another path, the cities file will be located in /newpath/g19. Consult the file /usr/micro/g19/cities.txt or /newpath/g19/cities.txt for information on the file format.

---

# Installation Instructions

Verify that you have been sent one (1) CD labeled UNIX Resident MileMaker (URMM) and one (1) Documentation CD which contains the User's Manual.

➡ To install the UNIX Resident MileMaker program:

1. If you want to install UNIX Resident MileMaker in /usr/micro, first create a user named micro.
2. Change to the directory /usr/micro by typing `cd /usr/micro<Enter>`.
3. Load the CD-ROM as user root, using the tar command that is appropriate for your system. If you do not know your tar device name, check with your system administrator. The CD-ROM contains either a single tar file `urmmg19.tar` in the root directory or two tar files in separate directories depending on the UNIX version as follows:

AIX: `urmmg19.tar`

HPUX: `itanium/urmmg19.tar` and `parisc/urmmg19.tar`

Solaris: `urmmg19.tar`

SCO: `openserver/urmmg19.tar` and `unixware/urmmg19.tar`

Linux: `redhat/urmmg19.tar` and `suse/urmmg19.tar`

**Please note:** `urmmg19.tar` has been created with relative paths and contains the `g19`, `g19/c`, `g19/c.online`, `g19/include`, `g19/include.online`, `g19/data`, and `g19/exe` directories.

4. Upon completion of the tape installation if you install in /usr/micro, the following subdirectories should exist on your hard drive:

<code>/usr/micro/g19/exe</code>	Executable Code
<code>/usr/micro/g19/c</code>	Source Code ( <code>hmgetenv.c</code> )
<code>/usr/micro/g19/data</code>	Data Files
<code>/usr/micro/g19/include</code>	Include Files ( <code>envname.h</code> )
<code>/usr/micro/g19/c.online</code>	Source Code for <code>client_app</code> , <code>start_urmm</code> , and <code>tcp_client</code>
<code>/usr/micro/g19/include.online</code>	Include Files for <code>client_app</code> , <code>start_urmm</code> , and <code>tcp_client</code>

**Please note:** If another path was used during installation, the subdirectories will be located in `/newpath/g19/c`, `/newpath/g19/c.online`, `/newpath/g19/include`, `/newpath/g19/include.online`, `/newpath/g19/exe` and `/newpath/g19/data`

5. All files and directories under /usr/micro should be owned by user micro. All files in the /usr/micro/g19/data directory should have read, write, and execute permissions for owner, group, and other.

This installation of the UNIX Resident MileMaker program is now complete. If you experience any problems during the installation, call Rand McNally & Company Technical Support at (800) 234-4069.

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## Update Installation Instructions

### Before you begin

- Installation of the release will take approximately 15 minutes.
- This release requires an existing version of MileMaker Guide 18.
- Please exit all sessions of MileMaker, and terminate running copies of programs **routproc** and **aca**.
- If you have third party software or a special operating system configuration that automatically regulates routproc's activity, please notify your interface software vender or system administrator about this release.
- If you encounter any difficulties during the installation of the release, please contact Technical Support at (800) 234-4069.

### Installation

1. Log in to a UNIX session as the user **micro**. If you do not have a user **micro**, we suggest logging in as **root**.
2. Change directory to the location where you want to install the Guide 19 system. For example if you want to install under the /usr/micro directory, at the system prompt type:

```
cd /usr/micro<Enter>
```

Next at the system prompt type:

```
pwd<Enter>
```

This will verify your current directory.

3. Insert the UNIX Resident MileMaker CD-ROM into your system's drive and perform the appropriate steps for mounting the CD-ROM. You may need to contact your System Administrator to mount the CD-ROM.

The CD-ROM contains the tar file **urmmg19.tar** with the UNIX Resident MileMaker update. The mount command for various operating systems is as follows:

**AIX:** mount -r -v cdrfs /dev/cd0 /cdrom<Enter>

**HP-UX:** mount -o cdfcase -F cdfs /dev/dsk/c0t0d0 /cdrom<Enter>

**SCO OpenServer:** mount -r /dev/cd0 /cdrom<Enter>

**SCO UnixWare:** mount -F cdfs -o ro /dev/cdrom/cdrom1 /cdrom<Enter>

**Solaris:** mount -r -F hsfs /dev/cd0 /cdrom<Enter>

**Linux:** mount -r -t iso9660 /dev/cdrom /cdrom<Enter>

**Notes:**

1. /dev/cd0, /dev/cdrom, /dev/cdrom/cdrom1, and /dev/dsk/c0t0d0 represent the device name of your CD-ROM and will vary from machine to machine.
  2. /cdrom is the mount point directory and will vary from machine to machine.
  3. Solaris CD-ROMs may be self-mounting. If this is the case you will not have to explicitly mount the CD-ROM.
  4. For SCO Open Server, the file urmmg19.tar may appear in uppercase as URMMG19.TAR.
4. Extract the appropriate archive using the tar command. The CD-ROM will load files with relative pathnames. For example if you are loading the CD-ROM on an AIX system, and the mount point for the CD-ROM is the directory /cdrom, type the following:

```
tar xvf /cdrom/urmmg19.tar<Enter>
```

For those CDs that contain multiple systems, choose the appropriate directory as follows:

HPUX

```
tar xvf /cdrom/itanium/urmmg19.tar<Enter>
```

```
tar xvf /cdrom/parisc/urmmg19.tar<Enter>
```

SCO

```
tar xvf /cdrom/openserver/urmmg19.tar<Enter>
```

```
tar xvf /cdrom/unixware/urmmg19.tar<Enter>
```

Linux

```
tar xvf /cdrom/redhat/urmmg19.tar<Enter>
```

```
tar xvf /cdrom/suse/urmmg19.tar<Enter>
```

5. Please wait until the entire tape archive is restored. You will be returned a system prompt when finished.

Next type:

```
ls<Enter> (This command is a lower-case LS)
```

The subdirectory g19 will be displayed which contains the new Guide 19 system.

6. At the system prompt type:

```
cd g19/exe<Enter>
```

You should now be in the directory /usr/micro/g19/exe. To verify this, type:

```
pwd<Enter>
```

7. At the system prompt type:

```
./update19<Enter>
```

You will be prompted to enter the locations of your Guide 18 and your Guide 19 data. If you installed both Guide 18 and Guide 19 under /usr/micro, then the location of the Guide 18 data will be /usr/micro/g18/data and the location of the Guide 19 data will be /usr/micro/g19/data. Follow the instructions that are displayed. You will be returned to the system prompt when this program is complete.

8. At the system prompt type:

```
cd ..<Enter>
```

You should now be in the directory /usr/micro/g19/exe. To verify this, type:

```
pwd<Enter>
```

9. Type:

```
ls<Enter> (This command is a lower-case LS)
```

One of the files displayed will be profile.19. This file will contain the Guide 19 environment variables. The directory paths of the files in profile.19 should reflect the actual locations of these files on disk. If you had copied the contents of profile.18 to another file for Guide 18, you will need to update this file with the new Guide 19 environment variables.

10. Run the profile that contains the updated MileMaker environment variables and use the **env** command to display your current environment. For example if profile.19 contains your environment variables type:

```
./profile.19<Enter>
```

```
env | more<Enter>
```

Verify that the displayed list contains the new environment variables.

11. To remove the CD on those systems that required mounting, you will need to unmount the CD as follows:

**AIX:** umount /cdrom  
**HP-UX:** umount /cdrom  
**SCO Open Server:** umount /cdrom  
**SCO UnixWare:** umount /cdrom  
**Solaris:** umount /cdrom  
**Linux:** umount /cdrom

/cdrom represents the mount point and will vary from machine to machine. On Solaris, if the CD was automatically mounted, you will not need to use the umount command. However in order to remove the CD on Solaris you will need to type:

**eject cd**<Enter>

## Router Process Start Up

1. Change directory to the location of your MileMaker Guide 19 system. For example if your MileMaker system is located in /usr/micro/g19, at the system prompt type:

```
cd /usr/micro/g19<Enter>
```

Next at the system prompt type:

```
pwd<Enter>
```

This will verify your current directory.

2. Run the profile that contains the updated MileMaker environment variables. For example if profile.19 contains your environment variables type :

```
./profile.19<Enter> (There is a space between the two periods.)
```

3. Type:

```
cd exe<Enter>
```

You will now be in the executable directory. If your MileMaker system is located in /usr/micro/g18, you will be in:

```
/usr/micro/g19/exe
```

4. Type:

```
./routproc &<Enter>
```

A process identifier will be displayed, and the system will return you to a prompt.

---

**Note:** The router process (routproc) must be running in the background before the main program or aca can be executed.

---

## Running Main Program

1. After starting the routproc process, type:

```
./main<Enter>
```

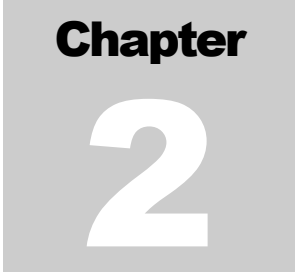
The MileMaker logo screen will appear. Press the <Enter> key to display the Master Menu.

The USER IDs and PASSWORDs used for the Master Menu before the update are still valid after this installation.

## **The Application Communication Area (ACA)**

All three integration methods, named pipes, non-named pipes, and TCP/IP are still valid with this release.

# **START-UP AND SHUT-DOWN PROCEDURES**



---

## **Chapter Contents**

**STARTING THE UNIX RESIDENT MILEMAKER APPLICATION ..... 16**  
**MILEMAKER START-UP SCREEN ..... 17**  
**ACCESS PROBLEMS ..... 17**  
**CREATING THE USER ID AND PASSWORD ..... 19**  
**START-UP PROCEDURE ..... 20**  
**SHUT-DOWN PROCEDURE ..... 20**

---

## Starting the UNIX Resident MileMaker Application

Assume that UNIX Resident MileMaker was installed in /usr/micro/g19. In the event that another path was used during installation, please substitute the new path for /usr/micro.

➤ Follow this procedure to access the UNIX Resident MileMaker application:

1. If you are not setting the environment variables in your .profile, .login, .cshrc, or .kshrc, execute the profile.19 file by typing the command:

```
. /usr/micro/g19/profile.19
```

---

**Note:** There is a space between the period and the slash above.

---

2. Proceed to the /usr/micro/g19/exe directory by typing: `cd /usr/micro/g19/exe` <ENTER>, and execute the program routproc (as a background process) by typing the command:

```
routproc& <ENTER> or ./routproc& <ENTER>
```

3. Execute the program main by typing the command:

```
main <ENTER> or ./main <ENTER>
```

---

**Note:** In a windowing environment, multiple copies of UNIX Resident MileMaker can be created by executing the main command again. The program, routproc, is executed once, since all the users on the system will be using the same router process.

---

---

## MileMaker Start-Up Screen

When UNIX Resident MileMaker is accessed for the first time, the following start-up screen will appear:

```

MILEMAKER START UP                                     Copyright 2008
                                                       by Rand McNally & Co.

=====
| SEED 1: █                                           |
| SEED 2: / /                                         |
| TRANSACTION CODE:  -  -                             |
|=====
| Please Contact Rand McNally for Initial Start-up Code. |
|=====
| 1-800-234-4069                                     |
| Press ENTER to Accept Codes                         |
| Press <ESC> to Exit Program                        |
|=====
```

UNIX Resident MileMaker requires a start-up code. Call Rand McNally & Company Financial Administration to receive your system's initial start-up code.

---

## Access Problems

If the Start-up screen is not displayed when you initiate MileMaker for the first time, perform the following checks:

1. Change to the `/usr/micro/g19/data` directory by typing:  
`cd /usr/micro/g19/data <ENTER>`
2. Check for the existence and size of the file, `sys_user.dat`. To check for the existence, type:  
`ls -l sys_user.dat`

If the file exists, the system will respond with a message like this:

```
rw-rw-rw  1 micro staff  0 jan 1 7:32  sys_user.dat
```

Check to ensure the size field is zero bytes. The field represented by zero (0), in the example above, is the size field.

If the file does not exist, the system will respond with a message stating that the file `sys_user.dat` does not exist.

3. If the `sys_user.dat` file is larger than zero (0) bytes, remove the `sys_user.dat` file by typing:

```
rm sys_user.dat
```

4. If the `sys_user.dat` file was not found in Step 2 or it was removed in Step 3, recreate a zero (0) byte `sys_user.dat` file by typing:

```
touch sys_user.dat
```

5. Return to the `/usr/micro/g19/exe` directory and restart the main program by typing the following commands:

```
cd /usr/micro/g19/exe <ENTER>
```

```
main <ENTER> or ./main <ENTER>
```

If you still do not see a Start-up screen appear, call Rand McNally & Company Technical Support at (800) 234-4069.

---

## Creating the User ID and Password

Subsequent to engaging in daily start-up and shut-down procedures for UNIX Resident MileMaker, you must create a user ID and password. Once created, the user ID and password must be entered every time the application is engaged. The first user ID and password entered into the system is referred to as the super user password. This password is necessary to perform any system maintenance function. It provides a primary level of security against unauthorized users accessing UNIX Resident MileMaker. In addition, you can assign individual IDs and passwords for your users. These passwords provide a second level of security against unauthorized use of UNIX Resident MileMaker and allows you to monitor each individual's level of usage. To create your Super User ID and password, follow this procedure:

1. Upon completion of the start-up process, the User Password Maintenance screen will appear. Before you begin inputting your ID and password, time should be taken to carefully consider their content. The ID and password should be short, easy to spell, and easy to remember.

Below is the User Password Maintenance Screen:

```

                                     MILEMAKER GUIDE #19                Copyright 2008
PASSWORD:█.....                    USER PASSWORD MAINTENANCE        by Rand McNally & Co.

USER ID:.....  EMPLOYEE NAME:.....

PASSWORD:.....  OLD PASSWORD: .....

F2/I   - INQUIRE ON USER
F2/A   - ADD A USER
F2/C   - CHANGE USER PASSWORD
F2/D   - DELETE A USER
F3     - CLEAR SCREEN

F1     - RETURN TO MASTER MENU
```

2. The cursor will be positioned in the USER ID field. Type in a user ID you would like to create and press the <TAB> key.
3. The cursor will be positioned in the EMPLOYEE NAME field. Type in the name associated with the user ID created in Step 2 and press the <TAB> key.
4. The cursor will be positioned in the PASSWORD field. Type the password for the user. Note that the characters will be invisible when they are typed. When you have finished typing, press and release the <F2> key followed by the letter "A" to add your user ID and password to the application. The application will respond with the message PRESS <F1> TO CONTINUE.

**Note:** The User Password Maintenance screen will not appear again during the course of normal start-up procedures. You may access this screen, to create additional user IDs and passwords, via the System Maintenance option.

---

## Start-Up Procedure

1. Press <ENTER> to proceed to the Master Menu.
2. Type in the user ID you have just created in the USER ID field and press the <TAB> key. Type in the password you have just created in the PASSWORD field and press the <ENTER> key. You are now ready to use MileMaker.

The screen below illustrates the screen on which you will enter the user ID and password.

```
USER ID: █..... MILEMAKER GUIDE #19 Copyright 2008
PASSWORD: ..... MASTER MENU by Rand McNally & Co.

HHG TARIFF MILEAGES
1 - HHG MILEAGE INQUIRY
2 - HHG SINGLE ORIGIN, MULTIPLE DESTINATION INQUIRY

HHG ROUTING
3 - HHG RULES AUDIT ROUTE ONLY
4 - HHG STATE MILEAGE BREAKDOWN ONLY
5 - HHG FULL ROUTE WITH STATE MILEAGE BREAKDOWN

PRACTICAL ROUTING
6 - PRACTICAL ROUTE ONLY
7 - PRACTICAL ROUTE STATE MILEAGE BREAKDOWN ONLY
8 - PRACTICAL ROUTE WITH STATE MILEAGE BREAKDOWN
9 - PRACTICAL MILEAGE INQUIRY

M - SYSTEM MAINTENANCE

PRESS DESIRED OPTION OR <ESC> TO LOGOUT
```

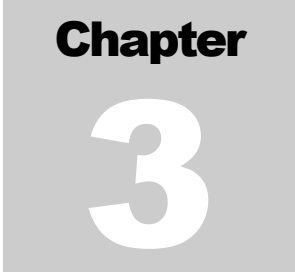
---

## Shut-Down Procedure

1. Press the <F1> key to proceed to the Master Menu.
2. Press the <ESC> escape key. The application will respond with the message:  
PRESS Q TO EXIT OR ANY OTHER KEY TO CONTINUE.

Press the letter “Q”. The UNIX Resident MileMaker application will be terminated and you will be returned to the shell prompt.

# MASTER MENU



---

## Chapter Contents

THE MASTER MENU ..... 22

---

## The Master Menu

UNIX Resident MileMaker mileage, routing, and system maintenance options are presented to you on a Master Menu screen which appears when you initially boot up the computer. The Master Menu may also be accessed at any time while you are in the application by pressing the <F1> key.

The Master Menu appears below:

```

                                MILEMAKER GUIDE #19
                                MASTER MENU
                                Copyright 2008
                                by Rand McNally & Co.

                                HHG TARIFF MILEAGES
1 - HHG MILEAGE INQUIRY
2 - HHG SINGLE ORIGIN, MULTIPLE DESTINATION INQUIRY

                                HHG ROUTING
3 - HHG RULES AUDIT ROUTE ONLY
4 - HHG STATE MILEAGE BREAKDOWN ONLY
5 - HHG FULL ROUTE WITH STATE MILEAGE BREAKDOWN

                                PRACTICAL ROUTING
6 - PRACTICAL ROUTE ONLY
7 - PRACTICAL ROUTE STATE MILEAGE BREAKDOWN ONLY
8 - PRACTICAL ROUTE WITH STATE MILEAGE BREAKDOWN
9 - PRACTICAL MILEAGE INQUIRY

M - SYSTEM MAINTENANCE

                                PRESS DESIRED OPTION OR <ESC> TO LOGOUT
```

# DATA ENTRY



---

## Chapter Contents

<b>INTRODUCTION.....</b>	<b>24</b>
<b>MILEAGE/ROUTING REQUESTS .....</b>	<b>24</b>
<b>THE BROWSE FEATURE .....</b>	<b>26</b>
<b>THE EDITING FEATURE .....</b>	<b>27</b>
<b>STATE AND PROVINCIAL ABBREVIATION LISTS .....</b>	<b>28</b>
<b>CHANGING TOLL ROAD USAGE ON PRACTICAL ROUTE INQUIRIES .....</b>	<b>28</b>

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## Introduction

Before you can successfully retrieve mileage and routing from the MileMaker application, you must enter data in its proper format. This chapter provides examples of proper location entries and instructs you how to overcome data input errors through the use of UNIX Resident MileMaker's browse feature, editing capabilities, and state/province abbreviation listings. You can also customize Practical Routing to reflect an increase or decrease in the amount of toll roads used in a Practical Route.

---

## Mileage/Routing Requests

You have seven options for entering locations:

- **Enter the city name and state code e.g. *Chicago,IL*.** The city name and the state or province abbreviation are separated by a comma (,) without spaces. Spaces are used to separate city names which contain more than one word.
- **Enter a truck stop name and state code e.g. *Brooke Sunoco Plz,IA*.** The truckstop name and the state abbreviation are separated by a comma (,) without spaces. Spaces are used to separate truck stop names which contain more than one word.
- **Enter a junction e.g. *I55/I94,IL*.** The highway names are separated by a slash (/); these are separated from the state or province abbreviation by a comma (,). Roadways are designated with an I (Interstate highway), U (U.S. highway), S (State highway), P (provincial or Trans Canada highway), C (County highway), or O (Other roadway i.e. local road).
- **Enter locations by SPLC (Standard Point Location Code) e.g. *380000*.** This is necessary to process the military locations in the manner acceptable to the Department of Defense. Six digit and nine digit SPLCs are supported.
- **Enter a 5-digit ZIP Code, e.g. *60620*.** Note: Large metropolitan areas may have multiple ZIP Codes. For example, 60601 and 60630 will both access the same point in Chicago for mileage calculation. Also, a single ZIP Code may include multiple locations. In that case, a browse window will appear with location choices.
- **Enter a Canadian Postal Code, e.g. *A0A1A0 or A0A 1A0*.** Canadian Postal Codes may be entered either with or without a space following the first three characters.
- **Enter the latitude and longitude point pair, e.g. *38.67 90.25 or 41.9405 87.9345*.** Valid for Practical Mileage/Route requests only. Enter the latitude,

followed by a space, and then the longitude. Enter both values with decimal precisions up to 6 decimal points, however, both latitude and longitude must be of the same decimal precision.

**Note:** In all the scenarios described above, the locations are entered by pressing the <TAB> key or the <DOWN ARROW> key. After the last location has been entered in your inquiry, press the <ENTER> key to begin processing.

**Note:** Locations may be entered in combinations of location name, SPLC, ZIP Code, Canadian Postal Code, junction, latitudes and longitudes, or truck stop name, depending on the type of mileage inquiry you are making.

**Note:** Only location names, SPLCs, ZIP Codes, junctions, and truck stop names are valid for obtaining HHG mileage. Latitudes and longitudes are only valid for Practical Mileage/Route requests.

Below is an example of a Mileage/Route inquiry screen.

LOCATION		SPLC		LOCATION		SPLC	
1)	PRATT,KS.....	589650	000	15)	.....	.....	.....
2)	HOKIE,AR.....	600728	000	16)	.....	.....	.....
3)	JONES IS 1,AL.....	479623	760	17)	.....	.....	.....
4)	493350.....	.....	.....	18)	.....	.....	.....
5)	.....	.....	.....	19)	.....	.....	.....
6)	.....	.....	.....	20)	.....	.....	.....
7)	.....	.....	.....	21)	.....	.....	.....
8)	.....	.....	.....	22)	.....	.....	.....
9)	.....	.....	.....	23)	.....	.....	.....
10)	.....	.....	.....	24)	.....	.....	.....
11)	.....	.....	.....	25)	.....	.....	.....
12)	.....	.....	.....	26)	.....	.....	.....
13)	.....	.....	.....	27)	.....	.....	.....
14)	.....	.....	.....	28)	.....	.....	.....

F1	F2/C	F2/B	F2/I	F2/D	F2/T	F2/S	F2/O
RETURN	CLEAR	BROWSE	INSERT	DELETE	AVOID TOLLS	STATES	OPTIMIZATION

To select any of the options listed at the bottom of the screen, you must first press and release the function key <F2> followed by the appropriate letter. To return to the Main Menu, press the <F1> key.

## The Browse Feature

The Browse feature will automatically appear as a pop-up window whenever a location is incorrectly entered. The Browse feature may also be used to help locate the proper spelling of a city name by providing an alphabetical list of city spellings.

```

Copyright 2008                               MILEMAKER GUIDE #19           Canadian postal codes
by Rand McNally & Co.                       MILEAGE/ROUTE INQUIRY SCREEN      <C> 2008
                                             HHG MILEAGE INQUIRY              DMTI Spatial Inc.
-----
LOCATION          SPLC          #    LOCATION
-----
1> KENASHA,WI   000000 000    1> KELLNER,WI
2> .....          .....          2> KELLNERSVILLE,WI
3> .....          .....          3> KELLY,WI
4> .....          .....          4> KEMP STREET AMOCO,WI
5> .....          .....          5> KEMPSTER,WI
6> .....          .....          6> KENDALL,WI
7> .....          .....          7> KENNAN,WI
8> .....          .....          8> KENOSHA,WI
9> .....          .....          9> KENOSHA MUN APT,WI
10> .....          .....         10> KENOSHA TS,WI
11> .....          .....         11> KENT,WI
12> .....          .....
13> .....          .....
14> .....          .....
-----
PAGE UP
PAGE DOWN
<ESC> TO EXIT BROWSE
ENTER A LINE NUMBER: ..
-----
LOCATION NOT FOUND

```

If you have incorrectly entered a point and the browse window has appeared:

1. Use the <Page Up> or <Page Down> key to view the list of locations. If your keyboard does not have a <Page Up> or <Page Down> key, the combination keystroke <Ctrl-U> may replace <Page Up> and <Ctrl-D> for <Page Down>.
2. Enter the line number which corresponds to the location you have chosen or press the <ESC> key to exit the browse window.

If you choose to initiate the browse window:

1. Type in the location (using a minimum of one letter) and the state code. (No Browse exists for SPLC.)
2. Press and release the <F2> key followed by the letter "B" to select the Browse option.
3. Enter the line number that corresponds to the location you have chosen or press the <ESC> key to abort the browse and exit the browse window.

---

## The Editing Feature

UNIX Resident MileMaker offers several methods for editing the location field:

- Use the backspace key to remove characters to the left of the cursor.
- Use the insert key (press the key once to engage the function) to insert a character where the cursor is positioned. Note that when the insert key is not engaged, the keys are in typeover mode; the character typed replaces the character where the cursor is positioned.
- Use the delete key to delete a character where the cursor is positioned.

You can insert, change, or delete a location from the list of locations you have entered prior to processing your inquiry:

- To insert a line in a list of locations, press and release the <F2> key followed by the letter "I". A line will be inserted in the location field above the line the cursor is on.
- To delete a line press and release the <F2> key followed by the letter "D". Data contained on the line the cursor is on will be deleted.

You can also recall a processed route and insert, change, or delete a location:

- From the output or answer screen, press the <F3> key. The list of locations you had previously entered will appear.

## State and Provincial Abbreviation Lists

If you press the <F2> key followed by the letter “S”, from any Inquiry (input) screen, the state and provincial abbreviation list will appear. Note that Mexican State abbreviations are included in the listing.

Press the <PG UP> and <PG DOWN> keys to scroll through the abbreviation listing or press the <ESC> key to return to your previous screen.

Copyright 2008 by Rand McNally & Co.		MILEMAKER GUIDE #19 MILEAGE/ROUTE INQUIRY SCREEN HHG MILEAGE INQUIRY		Canadian postal codes <C> 2008 DMI Spatial Inc.	
LOCATION	SPLC	ABBREU	STATE/PROVINCE	SPLC	
1) KENASHA, WI		AL	ALABAMA		
2)		AK	ALASKA		
3)		AZ	ARIZONA		
4)		AR	ARKANSAS		
5)		CA	CALIFORNIA		
6)		CO	COLORADO		
7)		CT	CONNECTICUT		
8)		DE	DELAWARE		
9)		DC	DIST OF COLUMBIA		
10)		FL	FLORIDA		
11)		GA	GEORGIA		
12)		HI	HAWAII		
13)					
14)					
			PAGE UP		
			PAGE DOWN		
			<ESC> TO EXIT		
F1 RETURN	F2/C CLEAR	F2/B BROWSE	F2/I INSERT	F2/D DELETE	I2/O IZATION

## Changing Toll Road Usage on Practical Route Inquiries

Toll road usage may be altered when you request Practical Routing and Mileage. The amount of toll road preference or avoidance is represented by the percentage symbol (%). An increase in the percentage indicates that toll roads should be avoided in a specified route. A decrease in the percentage indicates that toll roads should not be avoided in a specified route. Note, however, that the Practical Route may be affected when you change the toll avoidance setting, i.e. an increase in the usage of toll roads may bring about an increase or decrease in the mileage or travel time. Follow this procedure to set toll road usage:

1. Select the Practical Route option of your choice. Note that you can change the toll road usage from the HHG Inquiry option screens, however, only the Practical Routing options will be affected.
2. Press the <F2> key followed by the letter “T”. The Toll Avoidance window will be displayed:

```

Copyright 2008                               MILEMAKER GUIDE #19           Canadian postal codes
by Rand McNally & Co.                       MILEAGE/ROUTE INQUIRY SCREEN      (C) 2008
                                             PRACTICAL ROUTE ONLY             DMTI Spatial Inc.

  LOCATION          SPLC          LOCATION          SPLC
  1> .....          .....          15> .....          .....
  2> .....          .....          16> .....          .....
  3> .....          .....          17> .....          .....
  4> .....          .....          18> .....          .....
  5> .....          .....          19> .....          .....
  6> .....          .....
  7> .....          .....
  8> .....          .....
  9> .....          .....
 10> .....          .....
 11> .....          .....
 12> .....          .....
 13> .....          .....
 14> .....          .....

=====
TOLL AVOIDANCE:  0%
ENTER TOLL % :
=====
<ESC> TO RETURN
=====

  F1    F2/C    F2/B    F2/I    F2/D    F2/T    F2/S    F2/O
RETURN CLEAR BROWSE INSERT DELETE AVOID TOLLS STATES OPTIMIZATION

```

3. Type in the percentage of toll road usage using a value from zero (0) through one hundred (100) and press the <ENTER> key. Remember that one hundred (100) indicates minimum toll road usage and zero (0) indicates maximum toll road usage.

4. Press the <ESC> escape key to exit the Toll Usage window.

Upon pressing the <ESC> escape key the Practical Route Inquiry screen will appear. Your toll road usage will now be included in the calculation of Practical Routes. The percentage of toll road usage will be displayed on the answer (output) screen along with the Practical Routing and Mileage information.



# HHG MILEAGE RETRIEVAL



---

## Chapter Contents

<b>INTRODUCTION.....</b>	<b>32</b>
<b>HHG MILEAGE INQUIRY OPTION.....</b>	<b>33</b>
<b>MILEAGE INQUIRY OPTION WITH ROUTE OPTIMIZATION (OPTIONAL) .....</b>	<b>34</b>
<b>HHG SINGLE ORIGIN / MULTIPLE DESTINATION INQUIRY OPTION .....</b>	<b>35</b>
<b>MILEAGE CALCULATIONS .....</b>	<b>36</b>

---

## Introduction

UNIX Resident MileMaker offers two options when requesting HHG mileage:

- Finding HHG mileage between locations
- Finding mileage from the same origin to multiple destinations

**Note:** Routes derived from this feature generally incorporate highways from the Surface Transportation Assistance Act (“STAA”) and the National Highway System (“NHS”) networks. However, not all locations can be accessed on the STAA network. Therefore, in some cases your route results may contain non-STAA highways.

---

These options appear on the Master Menu screen shown below:

```

                                MILEMAKER GUIDE #19
                                MASTER MENU
                                Copyright 2008
                                by Rand McNally & Co.

                                HHG TARIFF MILEAGES
1 - HHG MILEAGE INQUIRY
2 - HHG SINGLE ORIGIN, MULTIPLE DESTINATION INQUIRY

                                HHG ROUTING
3 - HHG RULES AUDIT ROUTE ONLY
4 - HHG STATE MILEAGE BREAKDOWN ONLY
5 - HHG FULL ROUTE WITH STATE MILEAGE BREAKDOWN

                                PRACTICAL ROUTING
6 - PRACTICAL ROUTE ONLY
7 - PRACTICAL ROUTE STATE MILEAGE BREAKDOWN ONLY
8 - PRACTICAL ROUTE WITH STATE MILEAGE BREAKDOWN
9 - PRACTICAL MILEAGE INQUIRY

M - SYSTEM MAINTENANCE

                                PRESS DESIRED OPTION OR <ESC> TO LOGOUT
```

## HHG Mileage Inquiry Option

- The HHG mileage inquiry, <1>, allows you to enter a maximum of twenty-eight locations.
- The returned mileage is the mileage using HHG rules and approved truck-usable roadways for each pair of cities as well as the total mileage between the origin and destination. The county where each location resides is also displayed.
- The SPLC (Standard Point Location Code) for each city is displayed. The SPLC is a nine digit number issued by the National Motor Freight Traffic Association for regional identification of all points in the U.S., Mexico, and Canada.
- The calculation routine for mileage is designated with an S, a C, or an E. "S" indicates that the mileage calculation was executed using the MileMaker primary highway network. "C" indicates that the mileage calculation was executed using a small highway segment which was not part of the MileMaker primary highway network. "E" indicates that the mileage calculation could not be executed due to an internal route processing error. (Please call Rand McNally & Company Technical Support at (800) 234-4069 if you receive an "E" type error.)

Below is the answer screen for an HHG mileage request in which the origin is Chicago, IL, the first stop-off is Madison, WI, the second stop-off is St. Paul, MN, and the destination is Minot, ND.

MILEMAKER GUIDE #19				Copyright 2008
MILEAGE DISPLAY SCREEN				by Rand McNally & Co.
<u>HHG MILEAGE INQUIRY</u>				
CITY/STATE	SPLC	MILES	STATUS	COUNTY
1> CHICAGO,IL	380000 000			COOK
2> MADISON,WI	338500 000	142	S	DANE
3> ST PAUL,MN	504450 000	262	S	RAMSEY
4> MINOT,ND	513670 000	507	S	WARD
TOTAL MILES:		911		

F1 MASTER MENU      F2 NEW REQ      F3 EDIT REQ      F4 PRINT ROUTE

REQUEST PROCESSED

# Mileage Inquiry Option with Route Optimization (optional)

The Optimized mileage inquiry allows you to enter a minimum of four locations in any order. UNIX Resident MileMaker arranges the locations in a logical order of progression.

The returned mileage is based on HHG rules; it is not, however, considered to be an HHG mileage. HHG key point traversal rules are nullified to permit route optimization.

To optimize your mileage inquiry, follow these steps:

1. From the HHG mileage inquiry screen, press the <F2> key followed by the letter "O"; the optimization option window will appear.
2. Type the letter "Y" to confirm that this request is to be optimized.
3. Press the <TAB> key to advance the cursor to the DESTINATION LINE # field. You can specify a destination from your list of locations by typing in the line number where that location appears. If you do not wish to specify a destination, leave the field blank.
4. Press the <ENTER> key to indicate that the request is an optimization request.
5. Press the <ENTER> key to process the optimization request.

The screen below illustrates the proper format for an Optimization request. Note that the locations do not need to be input in any specific order.

```

Copyright 2008                               MILEMAKER GUIDE #19                Canadian postal codes
by Rand McNally & Co.                       MILEAGE/ROUTE INQUIRY SCREEN          (<C> 2008
                                             HHG MILEAGE INQUIRY                    DMTI Spatial Inc.

  LOCATION                                SPLC                                LOCATION                                SPLC
-----                                -
1> ALBANY,NY .....                       173360 000                          15> ..... OPTIMIZATION: N <Y OR N> .....
2> DETROIT,MI .....                       318100 000                          16> .....
3> ROANOKE,VA .....                       264600 000                          17> ..... DESTINATION LINE #: .....
4> BALTIMORE,MD .....                     234000 000                          18> .....
5> .....                                  .....                                19> .....
6> .....                                  .....                                20> ..... ENTER TO EXIT .....
7> .....                                  .....                                21> .....
8> .....                                  .....                                22> .....
9> .....                                  .....                                23> .....
10> .....                                  .....                                24> .....
11> .....                                  .....                                25> .....
12> .....                                  .....                                26> .....
13> .....                                  .....                                27> .....
14> .....                                  .....                                28> .....

  F1    F2/C    F2/B    F2/I    F2/D    F2/T    F2/S    F2/O
RETURN CLEAR  BROWSE  INSERT  DELETE  AVOID TOLLS  STATES  OPTIMIZATION

```

Below is the answer screen for an Optimization request. Note that the locations are displayed in a logical order of progression.

MILEMAKER GUIDE #19			Copyright 2008	
MILEAGE DISPLAY SCREEN			by Rand McNally & Co.	
<u>OPTIMIZED MILEAGE INQUIRY</u>				
CITY/STATE	SPLC	MILES	STATUS	COUNTY
1> ALBANY,NY	173360 000			ALBANY
2> BALTIMORE,MD	234000 000	324		BALTIMORE IC
3> ROANOKE,VA	264600 000	260		ROANOKE IC
4> DETROIT,MI	318100 000	518		WAYNE
TOTAL MILES:		1102		
F1 MASTER MENU	F2 NEW REQ	F3 EDIT REQ	F4 PRINT ROUTE	
<u>REQUEST PROCESSED</u>				

## HHG Single Origin / Multiple Destination Inquiry Option

This option, <2>, allows you to enter a starting location and multiple destinations.

The returned mileage is the shortest mileage using HHG rules and approved truck-usable roadways between the starting location and each of the destinations listed. The county where each location resides is also displayed.

The SPLC (Standard Point Location Code) for each city is displayed. The SPLC is a nine digit number issued by the National Motor Freight Traffic Association for regional identification of all points in the U.S., Mexico, and Canada.

The calculation routine for mileage is designated with an S, a C, or an E. "S" indicates that the mileage calculation was executed using the MileMaker primary highway network. "C" indicates that the mileage calculation was executed using a small highway segment which was not part of the MileMaker primary highway network. "E" indicates that the mileage calculation could not be executed due to an internal route processing error. (Please call Rand McNally & Company Technical Support at (800) 234-4069 if you receive an "E" type error.)

Below is an answer screen for an HHG Single Origin Multiple Destination inquiry in which the origin is Milwaukee, WI and the destinations are Helena, MT, Macon, GA, and Callao, UT.

MILEMAKER GUIDE #19				Copyright 2008	
MILEAGE DISPLAY SCREEN				by Rand McNally & Co.	
HHG SINGLE ORIGIN, MULTIPLE DESTINATION INQUIRY					
CITY/STATE	SPLC	MILES	STATUS	COUNTY	
1> MILWAUKEE, WI	336000 000			MILWAUKEE	
2> HELENA, MT	713190 000	1344	S	LEWIS & CLARK	
3> MACON, GA	463240 000	855	S	BIBB	
4> CALLAO, UT	764793 000	1544	C	JUAB	

F1 MASTER MENU      F2 NEW REQ      F3 EDIT REQ      F4 PRINT ROUTE

REQUEST PROCESSED

## Mileage Calculations

As we have previously noted, the calculation routine for mileage is designated with an S, a C, or an E. Where “S” indicates that the mileage calculation was executed using the MileMaker primary highway network; “C” indicates that the mileage calculation was executed using a small highway segment which was not part of the MileMaker primary highway network; “E” indicates that the mileage calculation could not be executed due to an internal route processing error.

Of the three designations for mileage calculation, the “C” mileage will present a mileage display which is slightly different from the “S” mileage. Below is a mileage display screen which illustrates the “C” mileage information.

MILEMAKER GUIDE #19				Copyright 2008	
MILEAGE DISPLAY SCREEN				by Rand McNally & Co.	
HHG MILEAGE INQUIRY					
CITY/STATE	SPLC	MILES	STATUS	COUNTY	
1> CURLY RUR, MI	307430 720			BARAGA	
LANSE, MI		2 MILES - A1			
2> ARCHER, IA	542664 000	547	C	OBRIEN	
TOTAL MILES:		547			

F1 MASTER MENU      F2 NEW REQ      F3 EDIT REQ      F4 PRINT ROUTE

REQUEST PROCESSED

In the scenario above, the origin point is Curly Rvr, MI and the destination is Archer, IA. Since the origin point is not contained in the MileMaker primary highway network, a mileage calculation is performed from the origin (Curly) to the closest point contained in the MileMaker primary highway network AND en route to the destination point (Archer). This intermediary point is Lanse, MI. MileMaker designates the intermediary point (Lanse) with an "A1". In addition, the mileage between the origin and intermediary point is displayed.

- "A1" means the origin to an intermediary point.
- "A2" means the intermediary point to the destination.



# HHG ROUTE RETRIEVAL



---

## Chapter Contents

INTRODUCTION.....	40
AUDIT ROUTE ONLY OPTION .....	40
STATE MILEAGE BREAKDOWN ONLY OPTION .....	41
HHG FULL ROUTE WITH STATE MILEAGE BREAKDOWN.....	42

---

## Introduction

UNIX Resident MileMaker offers three options when requesting HHG routes:

- Calculate a route using HHG rules
- Calculate the distance (miles) traveled in each state along a route (State Mileage Breakdown (SMB))
- Calculate an HHG route with SMB

These options appear on the Master Menu screen shown below:

```
MILEMAKER GUIDE #19                                     Copyright 2008
MASTER MENU                                             by Rand McNally & Co.

HHG TARIFF MILEAGES
1 - HHG MILEAGE INQUIRY
2 - HHG SINGLE ORIGIN, MULTIPLE DESTINATION INQUIRY

HHG ROUTING
3 - HHG RULES AUDIT ROUTE ONLY
4 - HHG STATE MILEAGE BREAKDOWN ONLY
5 - HHG FULL ROUTE WITH STATE MILEAGE BREAKDOWN

PRACTICAL ROUTING
6 - PRACTICAL ROUTE ONLY
7 - PRACTICAL ROUTE STATE MILEAGE BREAKDOWN ONLY
8 - PRACTICAL ROUTE WITH STATE MILEAGE BREAKDOWN
9 - PRACTICAL MILEAGE INQUIRY

M - SYSTEM MAINTENANCE

PRESS DESIRED OPTION OR <ESC> TO LOGOUT
```

---

## Audit Route Only Option

Audit Route Only, <3>, provides the HHG route for each city pair and stop off you have entered.

- Only HHG truck-authorized highways and rules are used in developing the HHG route from the origin to the destination.
- Each route displays the highway name, road direction, the number of miles on each segment of road, nearest junction or city name, cumulative miles traveled, and the road characteristics.

Below is the answer screen for an Audit Route request in which the origin is Kenosha, WI and the destination is Chicago, IL.

MILEMAKER GUIDE #19		Copyright 2008	
ROUTE DISPLAY SCREEN		by Rand McNally & Co.	
HIG FULL ROUTE WITH STATE MILEAGE BREAKDOWN			
KENOSHA, WI		TO CHICAGO, IL	
HIGHWAY	DIR MILES	TO LOCATION	ACCUMULATED TIME MILES NOTES
WI 32	S 1	S OF KENOSHA, WI	1
WI 50	W 4	E OF TRUESDELL, WI	4
WI 31	S 5	WI/IL STATE LINE	10
IL 131	S 2	W OF ZION, LA, IL	11
IL 173	W 3	SW OF RUSSELL, IL	15
US 41	S 24	W OF GLENCOE, IL	39
I 94	E 22	CHICAGO, IL	61
*****			
STATE	TOLL N-TOLL	TOTAL STATE	TOLL N-TOLL TOTAL
ILLINOIS	0 52	52 WISCONSIN	0 10 10
		TOTAL*****	0 61 61
F1 MASTER MENU F2 NEW REQ F3 EDIT REQ F4 PRINT ROUTE			
REQUEST PROCESSED			

## State Mileage Breakdown Only Option

- State Mileage Breakdown Only, <4>, gives you the distance (miles) traveled in each state along a route. The mileages are categorized as toll and non-toll.

Below is the answer screen for a State Mileage Breakdown request in which the origin is Chicago, IL and the destination is Gladstone, MI.

MILEMAKER GUIDE #19		Copyright 2008	
ROUTE DISPLAY SCREEN		by Rand McNally & Co.	
HIG STATE MILEAGE BREAKDOWN ONLY			
CHICAGO, IL		TO GLADSTONE, MI	
STATE	TOLL N-TOLL	TOTAL STATE	TOLL N-TOLL TOTAL
ILLINOIS	0 49	49 MICHIGAN	0 63 63
WISCONSIN	0 205	205	
		TOTAL*****	0 317 317
F1 MASTER MENU F2 NEW REQ F3 EDIT REQ F4 PRINT ROUTE			
REQUEST PROCESSED			

## HHG Full Route with State Mileage Breakdown

- HHG Full Route with State Mileage Breakdown, <5>, gives you a shortest distance route which traverses both Key and non-Key points, plus the shortest distance (miles) traveled in each state along that route. The mileage are categorized as toll and non-toll.

Below is the answer screen for a HHG Full Route with State Mileage Breakdown request in which the origin is Provo, UT and the destination is Las Vegas, NV.

PROVO,UT		MILEMAKER GUIDE #19 ROUTE DISPLAY SCREEN HHG FULL ROUTE WITH STATE MILEAGE BREAKDOWN TO LAS VEGAS,NU				Copyright 2008 by Rand McNally & Co.		
HIGHWAY	DIR	MILES	TO LOCATION		ACCUMULATED TIME	MILES	NOTES	
I 15	S	38	N OF NEPHI,UT			38		
UT 28	S	5	S OF NEPHI,UT			42		
I 15	S	224	UT/AZ STATE LINE			266		
I 15	S	29	AZ/NU STATE LINE			295		
I 15	S	66	NE OF N LAS VEGAS,NU			361		
NU 604	SW	14	LAS VEGAS,NU			376		
*****								
STATE		TOLL	N-TOLL	TOTAL	STATE	TOLL	N-TOLL	TOTAL
ARIZONA		0	29	29	NEVADA	0	80	80
UTAH		0	266	266	TOTAL*****	0	376	376
*****								
F1	MASTER MENU		F2	NEW REQ		F3	EDIT REQ	
REQUEST PROCESSED								

# PRACTICAL ROUTE RETRIEVAL



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## Chapter Contents

INTRODUCTION.....	44
PRACTICAL ROUTE ONLY OPTION.....	44
STATE MILEAGE BREAKDOWN OPTION .....	45
PRACTICAL ROUTE WITH STATE MILEAGE BREAKDOWN OPTION .....	46
PRACTICAL MILEAGE INQUIRY OPTION.....	47



---

## State Mileage Breakdown Option

- State Mileage Breakdown, <7>, provides the practical distance traveled in each state along a route.
- Mileage are categorized as toll or non-toll.

Below is an answer screen for a Practical Route State Mileage Breakdown request in which the origin is Theresa, WI and the destination is Pierre, SD.

Canadian Border Restriction On		MILEMAKER		Copyright 2008		
Green Band Restriction On		ROUTE DISPLAY SCREEN		by Rand McNally & Co.		
PRACTICAL ROUTE STATE MILEAGE BREAKDOWN ONLY						
TO	PIERRE,SD	TOLL: 0%				
STATE	STATE	TOLL	N-TOLL	TOLL	N-TOLL	TOTAL
THERESA,WI						
MINNESOTA		0	275	0	233	233
WISCONSIN		0	177			
	TOTAL*****	0	686	0	686	686

F1 MASTER MENU      F2 NEW REQ      F3 EDIT REQ      F4 PRINT ROUTE  
REQUEST PROCESSED

# Practical Route With State Mileage Breakdown Option

- Practical Route with State Mileage Breakdown, <8>, provides both the practical route and the state mileage breakdown information.

Below is an answer screen for a Practical Route With State Mileage Breakdown request in which the origin is Bruce Crossing, MI and the destination is Brainerd, MN.

```

Canadian Border Restriction On MILEMAKER Copyright 2008
Green Band Restriction On ROUTE DISPLAY SCREEN by Rand McNally & Co.
PRactical ROUTE WITH STATE MILEAGE BREAKDOWN
BRUCE XNG,MI TO BRAINERD,MN TOLL: 0%
HIGHWAY DIR MILES TO LOCATION ACCUMULATED TIME MILES NOTES
MI 28 W 40 WAKEFIELD,MI 0:55 40
US 2 W 12 MI/WI STATE LINE 1:13 52
US 2 W 104 WI/MN STATE LINE 3:29 157 BR
US 2 W 1 E OF PROCTOR,MN 3:30 158 BR
I 35 S 18 E OF IUERSON,MN 3:46 175
MN 210 W 56 N OF HASSMAN,MN 5:00 231
US 169 S 8 AITKIN,MN 5:11 239
MN 210 W 30 BRAINERD,MN 5:53 269
*****
STATE TOLL N-TOLL TOTAL STATE TOLL N-TOLL TOTAL
MICHIGAN 0 52 52 MINNESOTA 0 112 112
WISCONSIN 0 104 104 TOTAL***** 0 269 269
F1 MASTER MENU F2 NEW REQ F3 EDIT REQ F4 PRINT ROUTE
REQUEST PROCESSED

```

---

## Practical Mileage Inquiry Option

- Practical Mileage Inquiry <9> provides the miles in a practical route.

Below is the answer screen for a Practical Mileage Inquiry in which the origin is Chicago, IL, the first stop-off is Madison, WI, the second stop-off is St Paul, MN, and the destination is Minot, ND.

Canadian Border Restriction On		MILEMAKER		Copyright 2008	
Green Band Restriction On		ROUTE DISPLAY SCREEN		by Rand McNally & Co.	
<b>PRACTICAL MILEAGE INQUIRY</b>					
TOLL: 0%					
CITY/STATE	SPLC	MILES	ACCUMULATED TIME	MILES	
1) CHICAGO, IL	380000 000				
2) MADISON, WI	338500 000	152	2:43	152	
3) ST PAUL, MN	504450 000	262	6:51	414	
4) MINOT, ND	513670 000	543	15:29	957	
	TOTAL MILES:	957			
F1 MASTER MENU	F2 NEW REQ	F3 EDIT REQ	F4 PRINT ROUTE		
<b>REQUEST PROCESSED</b>					



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## Chapter Contents

**INTRODUCTION..... 50**

**SYSTEM MAINTENANCE SCREEN ..... 51**

**ZERO MILES PROCESSING ..... 52**

**GREEN BAND PROCESSING..... 53**

**CANADIAN BORDER PROCESSING ..... 53**

**ZIP CODE PROCESSING ..... 54**

**USER-DEFINED LOCATIONS/ROUTES ..... 56**

**PASSWORD MAINTENANCE ..... 60**

**MONITORING THE TRANSACTION LEVEL ..... 62**

**Screen Definitions..... 63**

**UPDATING THE TRANSACTION LEVEL ..... 65**

**AVOID/PREFER ROUTE..... 67**

**Display/Reset Avoided Segments..... 69**

**Display/Reset Preferred Segments..... 71**

**NEWFOUNDLAND ABBREVIATION ..... 73**

---

# Introduction

UNIX Resident MileMaker offers eight options when requesting System Maintenance:

- Specifying zero mileage processing between identical locations.
- Restricting or including “Green-banded “ roads in Practical route calculation.
- Restricting or including Canadian border traversal in Practical route calculation.
- Enabling or disabling ZIP Code Processing features.
- Creating, Backing up, and Restoring User-Defined Locations and Routes.
- Creating individual User IDs and passwords.
- Monitoring and updating your transaction level
- Avoid/Prefer Route Maintenance

The System Maintenance option appears on the Master Menu screen shown below:

```

                                MILEMAKER GUIDE #19
                                MASTER MENU
                                Copyright 2008
                                by Rand McNally & Co.

    HHG TARIFF MILEAGES

    1 - HHG MILEAGE INQUIRY
    2 - HHG SINGLE ORIGIN, MULTIPLE DESTINATION INQUIRY

    HHG ROUTING

    3 - HHG RULES AUDIT ROUTE ONLY
    4 - HHG STATE MILEAGE BREAKDOWN ONLY
    5 - HHG FULL ROUTE WITH STATE MILEAGE BREAKDOWN

    PRACTICAL ROUTING

    6 - PRACTICAL ROUTE ONLY
    7 - PRACTICAL ROUTE STATE MILEAGE BREAKDOWN ONLY
    8 - PRACTICAL ROUTE WITH STATE MILEAGE BREAKDOWN
    9 - PRACTICAL MILEAGE INQUIRY

    M - SYSTEM MAINTENANCE

    PRESS DESIRED OPTION OR <ESC> TO LOGOUT
```

---

## System Maintenance Screen

Upon pressing the System Maintenance option, <M>, the System Maintenance screen appears. Type in your super user password (the first password entered into the system from the initial installation) and press <ENTER> to continue.

**Note:** The password will not appear on the screen and the user cannot edit the entered password.

```

PASSWORD:.....          MILEMAKER GUIDE #19          Copyright 2008
                        SYSTEM MAINTENANCE SCREEN    by Rand McNally & Co.
F1 - RETURN TO MASTER MENU
0 - ZERO MILES PROCESSING
1 - GREEN BAND PROCESSING
2 - CANADIAN BORDER PROCESSING
3 - ZIP CODE PROCESSING
4 - USER-DEFINED LOCATIONS/ROUTES
5 - USER PASSWORD MAINTENANCE
6 - TRANSACTION USAGE
7 - TRANSACTION UPDATES
8 - AVOID/PREFER ROUTE MAINTENANCE
9 - NEWFOUNDLAND ABBREVIATION
PRESS KEY FOR DESIRED OPTION
```

If an invalid password is entered, the system will prompt you to return to the Master Menu. If a valid password is entered, the system will prompt you with the message, “Press Key for Desired Option”. From this point, until you return to the Master Menu or a mileage/routing screen, no additional passwords are needed.

---

## Zero Miles Processing

MileMaker allows you to specify whether a zero mileage or error message is returned when the same location is input as both origin and destination. To enable or disable Zero Miles Processing, follow this procedure:

1. Select option <M> from the Master Menu for System Maintenance.
2. Enter super user password and press <ENTER>.
3. Press the <0> key from the System Maintenance screen. The Zero Miles Processing screen is displayed.

```

MILEMAKER GUIDE #19                                     Copyright 2008
ZERO MILES PROCESSING                                   by Rand McNally & Co.

F1 - RETURN TO MASTER MENU
1 - TURN ZERO MILES PROCESSING ON
2 - TURN ZERO MILES PROCESSING OFF
<ESC> - RETURN

ZERO MILES PROCESSING IS ON
```

4. Type “1” if you wish to return a zero mileage when the same location is input as both origin and destination, i.e., Chicago, IL to Chicago, IL. Type “2” if you wish to return an error message indicating that the request could not be processed. The current Zero Miles Processing status, “ON” or “OFF” is displayed at the bottom of the screen.
5. Press <ESC> to return to the System Maintenance screen.

---

**Note:** The MileMaker system default for this option is “OFF”.

---

**Note:** The Zero Miles processing feature can only be used with HHG Mileage Inquiries (Option 1) and HHG Single Origin, Multiple Destination Inquiries (Option 2). The Application Communication Area (ACA) defines these options as (MI) and (MD).

---

**Note:** The Optimization feature is automatically disabled when Zero Miles Processing is “ON”.

---

---

## Green Band Processing

The Green Band Processing feature enables you to include or exclude “Green-Banded” roads in Practical route calculation. Remember that “Green-Banded” refers to roads which are deemed unusable for normal truck traffic using the parameters set by the Household Goods Mileage Guide (HHG). To enable or disable Green Band Processing, follow this procedure:

1. Select option <M> from the Master Menu for System Maintenance.
2. Enter super user password and press <ENTER>.
3. Press the <1> key from the System Maintenance screen. The Green Band Processing screen is displayed.

```
                                MILEMAKER GUIDE #19          Copyright 2008
                                GREEN BAND PROCESSING        by Rand McNally & Co.

                                F1 - RETURN TO MASTER MENU
                                1  - TURN GREEN BAND RESTRICTION OFF
                                2  - TURN GREEN BAND RESTRICTION ON
                                <ESC> - RETURN

                                GREEN BAND RESTRICTION IS ON
```

4. Type “1” if you wish to include “Green-Banded” roads in Practical route calculation. Type “2” if you wish to exclude “Green-Banded” roads in Practical route calculation. The current Green Banded Processing status, “ON” or “OFF” is displayed at the bottom of the screen.
5. Press <ESC> to return to the System Maintenance screen.

---

**Note:** When the MileMaker system is shipped, the Green Band Restriction is set to “ON”.

---

---

## Canadian Border Processing

The Canadian Processing feature enables you to traverse the U.S./Canadian border in Practical route calculations. Normally, if an origin and destination were located in the same country, the Practical route calculation would be forced to route in the same country, even if traversing a country border made the route quicker and shorter. When selected, the Canadian Border Processing feature disables this border

logic, thus permitting the traversal. To enable or disable Canadian Border Processing, follow this procedure:

1. Select option <M> from the Master Menu for System Maintenance.
2. Enter super user password and press <ENTER>.
3. Press the <2> key from the System Maintenance screen. The Canadian Border Processing screen is displayed.

```
-----
MILEMAKER GUIDE #19                               Copyright 2008
CANADIAN BORDER PROCESSING                         by Rand McNally & Co.

F1 - RETURN TO MASTER MENU
1 - CANADIAN BORDER RESTRICTION OFF
2 - CANADIAN BORDER RESTRICTION ON
<ESC> - RETURN

CANADIAN BORDER RESTRICTION ON
```

4. Type “1” if you wish to traverse Canadian borders in Practical route calculation. Type “2” if you do not wish to traverse Canadian borders in Practical route calculation. The current Canadian Border Processing status, “ON” or “OFF” is displayed at the bottom of the screen.
5. Press <ESC> to return to the System Maintenance screen.

**Note:** When the MileMaker system is shipped, the Canadian Border Restriction is set to “ON”.

---

## ZIP Code Processing

The ZIP Code Processing feature enables you to utilize ZIP Codes in the following ways:

You can enable ZIP Code Processing to automatically use a default location for a ZIP or you can disable ZIP Code Processing and generate a 5-digit ZIP Code listing from which you can select a different location to correspond with that ZIP Code.

**Note:** Identical HHG and Practical ZIP Codes may be represented by different locations.

**Note:** The 5-digit ZIP Code listing will appear only when multiple locations exist for the same ZIP Code.

To enable or disable these ZIP Code Processing features, follow this procedure:

1. Select option <M> from the Master Menu for System Maintenance.
2. Enter super user password and press <ENTER>.
3. Press the <3> key from the System Maintenance screen. The ZIP Code Processing screen is displayed.

```
                                MILEMAKER GUIDE #19          Copyright 2008
                                ZIP CODE PROCESSING          by Rand McNally & Co.

                                F1 - RETURN TO MASTER MENU
                                1  - USE DEFAULT ZIP CODES
                                2  - DO NOT USE DEFAULT ZIP CODES
                                <ESC> - RETURN

                                DOES NOT USE DEFAULT ZIP CODES
```

4. Type "1" if you wish to use the default location for a ZIP Code. Type "2" if you wish to automatically generate a 5-digit ZIP Code Listing (when multiple locations exist for the same ZIP Code) and select your own ZIP Code. The current ZIP Code Processing status, "ON" or "OFF" is displayed for each feature at the bottom of the screen.

---

**Note:** ZIP Codes displayed on the 5-digit ZIP Code listing may be prefaced by "\*". An "\*" indicates that the ZIP Code is used as a default for both HHG and Practical mileage requests. Press <ESC> to return to the System Maintenance screen.

---

---

**Note:** Special Note for Clients Using 5-digit ZIP Codes in the ACA Integration Technique.

---

If multiple locations exist for the same ZIP Code and default ZIP Codes are disabled (option 2), an error code will be generated.

If multiple locations exist for the same ZIP Code and default ZIP Codes are enabled (option 1), no error code will be generated.

To use default ZIP Codes, you must first enable default ZIP Code processing (option 1) in the base product (Main), not through the ACA Integration Technique. Refer to the instructions on the preceding page to enable default ZIP Code processing.

## User-Defined Locations/Routes

MileMaker allows you to enter routes or locations and recall them at a later date with a code name of your own design. These “custom” routes and locations may be inserted among other locations to create extended routes or they may be processed separately for mileage and routing information. To create a User-Defined Route, follow this procedure:

1. Select option <M> from the Master Menu for System Maintenance.
2. Enter super user password and press <ENTER>.
3. Press the <4> key from the System Maintenance screen. The User-Defined Locations/Routes screen will appear:

MILEMAKER GUIDE #19 USER-DEFINED LOCATIONS/ROUTES		Copyright 2008 by Rand McNally & Co.
USER DESCRIPTION: _____		Canadian postal codes (C) 2008 DMI Spatial Inc.
LOCATION	SPLC	
1) .....	.....	
2) .....	.....	
3) .....	.....	F1 - MASTER MENU
4) .....	.....	F2/C - CLEAR SCREEN
5) .....	.....	F2/L - LOCATION BROWSE
6) .....	.....	F2/R - REMOVE USER-DEFINED ROUTE
7) .....	.....	F2/A - ADD USER-DEFINED ROUTE
8) .....	.....	F2/U - USER-DEFINED ROUTE BROWSE
9) .....	.....	F2/H - CHANGE
10) .....	.....	F2/I - INQUIRE
11) .....	.....	F3/S - SAVE USER-DEFINED ROUTE FILE
12) .....	.....	F3/R - RESTORE USER-DEFINED ROUTE FILE
13) .....	.....	<ESC> - RETURN
14) .....	.....	

4. Type the code name for the route in the USER DESCRIPTION field. (The field accepts a maximum of 21 characters. NOTE: 5,6, or 9-character numeric codes cannot be used.) After you have finished typing in the description, press the <TAB> key to move the cursor to the LOCATION field.
5. Type in the locations.

6. After you have finished typing in your locations, press the <F2> key followed by the letter "A" to add them to the system.

The screen below illustrates the proper format for entering data:

```

MILEMAKER GUIDE #19                                     Copyright 2008
USER-DEFINED LOCATIONS/ROUTES                           by Rand McNally & Co.
USER DESCRIPTION: ROUTE1
LOCATION          SPLC
-----
1) PROVO,UT..... 764350 000
2) LANDER,WY..... 735170 000
3) SANDPOINT, ID. 830355 000
4) LYNDEN,WA..... 844143 000
5) .....
6) .....
7) .....
8) .....
9) .....
10) .....
11) .....
12) .....
13) .....
14) .....
F1 - MASTER MENU
F2/C - CLEAR SCREEN
F2/L - LOCATION BROWSE
F2/R - REMOVE USER-DEFINED ROUTE
F2/A - ADD USER-DEFINED ROUTE
F2/U - USER-DEFINED ROUTE BROWSE
F2/H - CHANGE
F2/I - INQUIRE
F3/S - SAVE USER-DEFINED ROUTE FILE
F3/R - RESTORE USER-DEFINED ROUTE FILE
<ESC> - RETURN
Canadian postal codes
(C) 2008
DMI Spatial Inc.

```

After the route has been added to the system, it may be recalled simply by typing in the user-defined name in the location field of any option inquiry screen and pressing the <TAB> key. Upon pressing <TAB>, the locations referenced in the user-defined route will be displayed. (Do not use the insert command, <F2> followed by <I>, to input user-defined route codes.) These "custom" routes and locations may be inserted among other locations to create extended routes or they may be processed separately for mileage and routing information. In our example, we created a route with the user defined name "ROUTE1".

The screen below illustrates how this route, represented by the user defined name, can be added to other locations to create an extended route:

Copyright 2008 by Rand McNally & Co.		MILEMAKER GUIDE #19 MILEAGE/ROUTE INQUIRY SCREEN HHG MILEAGE INQUIRY		Canadian postal codes (C) 2008 DMTI Spatial Inc.	
LOCATION	SPLC	LOCATION	SPLC		
1> FLAGSTAFF,AZ.....	792140 000	15> .....	.....		
2> ROUTE1.....	.....	16> .....	.....		
3> .....	.....	17> .....	.....		
4> .....	.....	18> .....	.....		
5> .....	.....	19> .....	.....		
6> .....	.....	20> .....	.....		
7> .....	.....	21> .....	.....		
8> .....	.....	22> .....	.....		
9> .....	.....	23> .....	.....		
10> .....	.....	24> .....	.....		
11> .....	.....	25> .....	.....		
12> .....	.....	26> .....	.....		
13> .....	.....	27> .....	.....		
14> .....	.....	28> .....	.....		

F1	F2/C	F2/B	F2/I	F2/D	F2/T	F2/S	F2/O
RETURN	CLEAR	BROWSE	INSERT	DELETE	AVOID TOLLS	STATES	OPTIMIZATION

After the last location has been entered, press the <ENTER> key to retrieve mileage and routing information. Note that the maximum number of locations for an inquiry is 28. This total includes locations which make up the User Defined Route.

UNIX Resident MileMaker processes the mileage request:

MILEMAKER GUIDE #19 MILEAGE DISPLAY SCREEN HHG MILEAGE INQUIRY		Copyright 2008 by Rand McNally & Co.		
CITY/STATE	SPLC	MILES	STATUS	COUNTY
1> FLAGSTAFF,AZ	792140 000			COCONINO
2> PROVO,UT	764350 000	462	S	UTAH
3> LANDER,WY	735170 000	319	S	FREMONT
4> SANDPOINT, ID	830355 000	772	S	BONNER
5> LYNDEN,WA	844143 000	420	S	WHATCOM
TOTAL MILES:		1973		

F1	MASTER MENU	F2	NEW REQ	F3	EDIT REQ	F4	PRINT ROUTE
REQUEST PROCESSED							

To create a user defined location (previously referred to as a “User Conversion”), follow the same procedure used to create user defined routes:

1. Press the <F2> key from the System Maintenance screen followed by the letter “R”.
2. Type the code name for the location in the USER DESCRIPTION field. (The field accepts a maximum of 21 characters.) After you have finished typing in the description, press the <TAB> key to move the cursor to the LOCATION field.
3. Type in the location.

4. After you have finished typing in your location, press the <F2> key followed by the letter “A” to add it to the system.

In addition to the ADD command, you can inquire, change, delete, browse, or clear User-Defined Location/Route entries.

- The INQUIRE command, <F2> followed by the letter “I”, allows you to verify the location represented by a User Description.
- The CHANGE command, <F2> followed by the letter “H”, allows you to change the User Description or location from a specific entry.
- The REMOVE command, <F2> followed by the letter “R”, allows you to delete a specific User-Defined location or route.
- The USER-DEFINED ROUTE BROWSE command, <F2> followed by the letter “U”, allows you to scan the list of User Descriptions. If the list is extensive, use the <PAGE UP> and <PAGE DOWN> keys to scroll through the list.
- The CLEAR SCREEN command, <F2> followed by the letter “C”, allows you to remove all input data from the User-Defined Locations/Routes screen.
- The LOCATION BROWSE command, <F2> followed by the letter “L”, allows you to locate the proper spelling of a city name by providing an alphabetical list of city spellings.
- The SAVE USER-DEFINED ROUTE FILE command, <F3> followed by the letter “S”, allows you to write the User-Defined Route and Location File to the hard disk. Use the following procedure:

➡ To back up the file to the hard disk:

1. Press <F3> followed by the letter “S”, from the User-Defined Location/Route screen. The file, if permissions permit, will be copied to the data directory as file: alias.sav
  2. Press <ENTER>. UNIX Resident MileMaker will respond with the message: USER DEFINED ROUTE FILE SAVED.
- The RESTORE USER-DEFINED ROUTE FILE command, <F3> followed by the letter “R”, allows you to restore the file to UNIX Resident MileMaker. The file, alias.sav, will be copied to alias.dat. Use the following procedure:

➡ To restore the file to UNIX Resident MileMaker:

1. Press <F3> followed by the letter “R”, from the User-Defined Location/Route screen. UNIX Resident MileMaker will respond with the message: “THE EXISTING USER-DEFINED ROUTE FILE WILL BE OVERWRITTEN. PRESS <ESC> TO ABORT OR PRESS RETURN TO CONTINUE.”
2. Press <RETURN>. UNIX Resident MileMaker will respond with the message: “USER-DEFINED ROUTE FILE RESTORED. PRESS <ESC> TO ABORT OR PRESS RETURN TO CONTINUE.”

---

## Password Maintenance

The Password Maintenance option allows you to assign individual IDs and passwords for your users. This will provide an additional level of security against unauthorized usage of UNIX Resident MileMaker. To create individual IDs and passwords, follow this procedure:

1. Select option <M> from the Master Menu for System Maintenance.
2. Enter super user password and press <ENTER>.
3. Press the <5> key from the System Maintenance menu to access the User Password Maintenance screen.
4. The cursor will be positioned in the MASTER PASSWORD field. Type in your Master Password and press the <TAB> key. Note that the characters will be invisible when they are typed.
5. The cursor will advance to the USER ID field. Type in the desired user ID and press the <TAB> key.
6. The cursor will advance to the EMPLOYEE NAME field. Type in the name of the employee who will be accessing UNIX Resident MileMaker with this ID and press the <TAB> key.
7. The cursor will advance to the PASSWORD field. Type in the desired password. Note that the characters will be invisible when they are typed. When you have finished typing, press and release the <F2> key followed by the letter "A" to add the user ID and password to the application. The application will respond with the message USER ADDED.

The User Password Maintenance screen is shown below:

```

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USER PASSWORD MAINTENANCE                               by Rand McNally & Co.

PASSWORD:█.....

USER ID:..... EMPLOYEE NAME:.....

PASSWORD:..... OLD PASSWORD: .....█

F2/I   - INQUIRE ON USER
F2/A   - ADD A USER
F2/C   - CHANGE USER PASSWORD
F2/D   - DELETE A USER
F3     - CLEAR SCREEN

F1     - RETURN TO MASTER MENU
```

In addition to the ADD command, you can inquire, change, delete, or clear ID and password entries.

- The INQUIRE command <F2/I>, allows you to verify the user name represented by a user password.
- The CHANGE command <F2/C>, allows you to change the user password.
- The DELETE command <F2/D>, allows you to delete a user password.
- The CLEAR SCREEN command <F3>, allows you to remove all input data from the User Password Maintenance screen.

---

## Monitoring the Transaction Level

UNIX Resident MileMaker monitors your transaction level and makes adjustments to it when transactions are used. When requests are processed, the resulting mileage and routes are recorded as used transactions and subtracted from the remaining portion of available transactions. Current transaction levels may be monitored by selecting the PRINT REPORT option from the System Maintenance Menu. You may also use this option to check your license expiration date. Remember that a transaction consists of a mileage or route between one origin and one destination. To monitor your transaction level, follow this procedure:

1. Select option <M> from the Master Menu for System Maintenance.
2. The System Maintenance screen appears. Enter super user password and press <ENTER>.
3. Press the <6> key from the System Maintenance menu. UNIX Resident MileMaker will respond with the message: PRESS "P" FOR PRINTED REPORT OR "S" FOR SCREEN REPORT. (See example below.)

```

PASSWORD:.....          MILEMAKER GUIDE #19          Copyright 2008
                        SYSTEM MAINTENANCE SCREEN    by Rand McNally & Co.
F1 - RETURN TO MASTER MENU

0 - ZERO MILES PROCESSING
1 - GREEN BAND PROCESSING
2 - CANADIAN BORDER PROCESSING
3 - ZIP CODE PROCESSING
4 - USER-DEFINED LOCATIONS/ROUTES
5 - USER PASSWORD MAINTENANCE
6 - TRANSACTION USAGE
7 - TRANSACTION UPDATES
8 - AVOID/PREFER ROUTE MAINTENANCE
9 - NEWFOUNDLAND ABBREVIATION
    PRESS KEY FOR DESIRED OPTION
```

If you desire a screen display of your current transaction status, press the letter “S”. The total transactions purchased, used, and remaining will appear:

TRANSACTIONS PURCHASED	UNLIMITED
ADDITIONAL TRANSACTIONS	+ 0
TRANSACTIONS USED	- 22
-----	-----
TRANSACTIONS REMAINING	UNLIMITED
Press <F1> for SYSTEM MAINTENANCE SCREEN	

## Screen Definitions

### Transactions Purchased

Indicates the total amount of transactions purchased at a given time. This is updated each time a new transaction code is entered.

### Additional Transactions

Indicates the number of transactions purchased in addition to the base transaction amount.

### Transactions Used

Indicates the number of transactions (including additional transactions) used since the last transaction code was entered.

### Transactions Remaining

Indicates the number of transactions remaining since the last transaction code was entered.

### Practical

This heading will appear ONLY if Practical transactions are purchased separately from HHG transactions or if HHG mileage and routing options are unavailable.

### HHG

This heading will appear ONLY if HHG transactions are purchased separately from Practical transactions or if Practical mileage and routing options are unavailable.

If you desire a printed report of your transaction status plus a breakdown of individual transaction usage, press the letter "P". The breakdown, by ID, of individual transaction usage plus the aggregate total transactions purchased, used, and remaining will be sent directly to the print buffer. (See the following page for an example of a printed report.)

REPORT NO. :	MILEMAKER	DATE PREPARED:
RPT001	USAGE MONITORING	10/21/08
	REPORT	TIME PREPARED: 12:17:04
	FOR MONTH OF OCTOBER	
TRANSACTION SUMMARY		
USER ID	TRANSACTION TYPE	NUMBER OF TRANSACTIONS
-----	-----	-----
KLAUS	MILEAGE, NO OPTIMIZE	2
	MILEAGE, OPTIMIZE	0
	MILEAGE, ORIGIN INQUIRY	2
	AUDIT, ROUTE ONLY	2
	SHORT, STATE ONLY	2
	SHORT, ROUTE/STATE	4
	PRAC, ROUTE ONLY	2
	PRAC, STATE ONLY	2
	PRAC, ROUTE/STATE	2
	PRAC, MILES ONLY	2
		-----
SUB TOTAL		20
MARGIE	MILEAGE, NO OPTIMIZE	0
	MILEAGE, OPTIMIZE	0
	MILEAGE, ORIGIN INQUIRY	2
	AUDIT, ROUTE ONLY	0
	SHORT, STATE ONLY	0
	SHORT, ROUTE/STATE	0
	PRAC, ROUTE ONLY	1
	PRAC, STATE ONLY	0
	PRAC, ROUTE/STATE	0
	PRAC, MILES ONLY	2
		-----
SUB TOTAL		5
TRANSACTIONS PURCHASED	UNLIMITED	
TOTAL TRANSACTIONS USED	- 25	
	-----	
TRANSACTIONS REMAINING	UNLIMITED	

---

## Updating the Transaction Level

If your UNIX Resident MileMaker system is transaction based, use the following procedure to add more transactions.

If you make a transaction request and receive the message, OUT OF TRANSACTIONS, then all available transactions have been exhausted. MileMaker will process the last request when there is a transaction deficit; however, the deficit amount will be subtracted from the next updated or regenerated transaction level.

To remedy this situation, you can order additional transactions from Rand McNally & Company Financial Administration at (800) 234-4069. The transactions can be purchased in any quantity and are represented by a specific alpha-numeric code, which must be entered in the MileMaker application. The extension of your license period may be handled in the same way. Use the following procedure to update your application with additional transactions or extend your license period:

1. Press the <M> key from the Master Menu. The System Maintenance screen will appear.
2. Enter super user password and press <ENTER>. The System Maintenance screen will be displayed.
3. From the System Maintenance screen, press the <7> key to display the update screen.

```

PASSWORD:.....          MILEMAKER GUIDE #19          Copyright 2008
                        SYSTEM MAINTENANCE SCREEN    by Rand McNally & Co.
F1 - RETURN TO MASTER MENU
0 - ZERO MILES PROCESSING
1 - GREEN BAND PROCESSING
2 - CANADIAN BORDER PROCESSING
3 - ZIP CODE PROCESSING
4 - USER-DEFINED LOCATIONS/ROUTES
5 - USER PASSWORD MAINTENANCE
6 - TRANSACTION USAGE
7 - TRANSACTION UPDATES
8 - AVOID/PREFER ROUTE MAINTENANCE
9 - NEWFOUNDLAND ABBREVIATION
PRESS KEY FOR DESIRED OPTION
```

4. Type in the update code and press <ENTER>.

```
MILEMAKER USAGE MONITORING                                     Copyright 2008
                                                            by Rand McNally & Co.

=====
| CURRENT CUSTOMER NUMBER: 26059-2                          |
| ENTER UPDATE CODE:                                        |
|=====
|
| Press ENTER to Accept Code                                |
| Press <F1> for SYSTEM MAINTENANCE SCREEN                 |
|=====
```

If the update code has been entered correctly for updating transactions, the previous transaction level will be displayed along with the number of additional transactions purchased and the adjusted transaction level.

```
=====
| TRANSACTIONS PURCHASED          375                       |
| ADDITIONAL TRANSACTIONS        + 2517                    |
| TRANSACTIONS USED              - 2517                    |
|-----|
| TRANSACTIONS REMAINING          375                       |
|-----|
| Press <F1> for SYSTEM MAINTENANCE SCREEN                 |
|=====
```

5. Press the <F1> key to return to the System Maintenance screen.

---

## Avoid/Prefer Route

The Avoid/Prefer Route option allows the user to designate whether specific segments, along a highway which emanates from or traverses a particular location (also specified by the user), are to be avoided or preferred in Practical mileage and routing calculations which involve that location.

For example, if a user prefers to utilize I290 in Practical mileage and routing calculations involving Chicago, IL, they can designate I290 as their preferred route while designating other major highways, i.e., I94, I90, Ogden Avenue, Congress Parkway, as highways to be avoided.

To specify Avoid/Prefer Routes for a location, follow this procedure:

1. Select option <M> from the Master Menu for System Maintenance.
2. Enter super user password and press <ENTER>.
3. Press the <8> key from the System Maintenance screen. The Avoid/Prefer Maintenance screen will appear.
4. Press the <1> key to add avoided or preferred segments to a particular location. The Location screen is displayed

```
MILEMAKER GUIDE #19                                     Copyright 2008
AVOID/PREFER MAINTENANCE                               by Rand McNally & Co.

F1      - RETURN TO MASTER MENU
1       - ADD AVOIDED AND PREFERRED SEGMENTS
2       - DISPLAY/RESET AVOIDED SEGMENTS
3       - DISPLAY/RESET PREFERRED SEGMENTS
<ESC>  - RETURN TO PREVIOUS SCREEN
```

5. Type in the location city and state code separated by a comma and press <ENTER>. A list of major highways out of the specified location will be displayed.

```
MILEMAKER GUIDE #19                                     Copyright 2008
AVOID/PREFER MAINTENANCE                               by Rand McNally & Co.

LOCATION: CHICAGO,IL_____

F1 - RETURN TO MASTER MENU
<ESC> - RETURN TO PREVIOUS SCREEN
```

6. Select the highway (designated by a corresponding line number) you wish to avoid or prefer in mileage and routing calculations to or from this location and press <ENTER>.

```
MILEMAKER GUIDE #19                                     Copyright 2008
AVOID/PREFER MAINTENANCE                               by Rand McNally & Co.

HIGHWAYS OUT OF CHICAGO,IL 380000000

1> EAST      I 90/I 94
2> WEST      I 90/I 94
3> WEST      I 290
4> EAST      CONGRESS PKWY

ENTER A LINE NUMBER -
PRESS <ESC> TO RETURN TO PREVIOUS SCREEN
```

- A list of highway segments along your chosen route will be displayed. Designate each route segment with an "A" (if this segment is to be avoided) or "P" (if this segment is to be preferred).

```

MILEMAKER GUIDE #19                                     Copyright 2008
AVOID/PREFER MAINTENANCE                               by Rand McNally & Co.

IN COLUMN 1, PLACE A FOR AVOID; P FOR PREFER

          SEGMENTS ALONG WEST          I 90/I 94

:         CHICAGO, IL                    TO  I90/S64, IL
:         I90/S64, IL                    TO  I90/S19, IL
:         I90/S19, IL                    TO  I90/I94/43, IL

<ENTER> - TO PROCESS   <ESC> - TO RETURN TO PREVIOUS SCREEN

```

- Press <ENTER> to process the selections.

## Display/Reset Avoided Segments

To display the list of avoided segments or to reset the data base to its default setting, use the following procedure:

- Press the <M> key from the Master Menu. The System Maintenance screen will appear.
- Enter super user password and press <ENTER>.
- From the System Maintenance screen, press the <8> key to display the Avoid/Prefer Route Maintenance screen.

```

MILEMAKER GUIDE #19                                     Copyright 2008
AVOID/PREFER MAINTENANCE                               by Rand McNally & Co.

F1      - RETURN TO MASTER MENU
1       - ADD AVOIDED AND PREFERRED SEGMENTS
2       - DISPLAY/RESET AVOIDED SEGMENTS
3       - DISPLAY/RESET PREFERRED SEGMENTS
<ESC>  - RETURN TO PREVIOUS SCREEN

```

4. Press the <2> key to display the list of avoided segments. A screen will be displayed prompting you to list avoided segments for a particular state or display avoided segments for all states.

```
MILEMAKER GUIDE #19                                     Copyright 2008
AVOID/PREFER MAINTENANCE                               by Rand McNally & Co.

DISPLAY SEGMENTS IN ALL STATES OR
TYPE STATE ABBREVIATION FOR SEGMENTS IN A PARTICULAR STATE
STATE ..

<ENTER> - TO PROCESS  <ESC> - TO RETURN TO PREVIOUS SCREEN
```

5. Type a state code to display all avoided segments in a particular state or press <ENTER> to display avoided segments in all states. A list of avoided segments will be displayed.

```
MILEMAKER GUIDE #19                                     Copyright 2008
AVOID/PREFER MAINTENANCE                               by Rand McNally & Co.

TO RESET INDIVIDUAL SEGMENTS, PLACE R IN COLUMN 1 <PRESS F1>
TO RESET ALL SEGMENTS <PRESS F2>
-----
A VOI D E D  S E G M E N T S                               H I G H W A Y
- CHICAGO,IL          TO I90/S64,IL          I 90/I 94
- I90/S64,IL          TO I90/S19,IL          I 90/I 94
- I90/S19,IL          TO I90/I94/43,IL       I 90/I 94

PAGE UP  PAGE DOWN  <ESC> - TO RETURN TO PREVIOUS SCREEN
```

- To reset a specific segment, designated as avoided, to its original default status, type an "R" in column 1 of the line where the segment is displayed and press the <F1> key. To reset all segments for the state(s), press the <F2> key. Use the <PG UP> or <PG DWN> keys to scroll through the list.

```

MILEMAKER GUIDE #19                                     Copyright 2008
AVOID/PREFER MAINTENANCE                               by Rand McNally & Co.

TO RESET INDIVIDUAL SEGMENTS, PLACE R IN COLUMN 1 <PRESS F1>
TO RESET ALL SEGMENTS <PRESS F2>
-----
AVOIDED SEGMENTS                                     HIGHWAY

- CHICAGO,IL          TO I90/S64,IL          I 90/I 94
- I90/S64,IL          TO I90/S19,IL          I 90/I 94
- I90/S19,IL          TO I90/I94/43,IL       I 90/I 94

PAGE UP    PAGE DOWN    <ESC> - TO RETURN TO PREVIOUS SCREEN

```

- Press the <ESC> key to return to the System Maintenance screen.

## Display/Reset Preferred Segments

To display the list of preferred segments or to reset the data base to its default setting, use the following procedure:

- Press the <M> key from the Master Menu. The System Maintenance screen will appear.
- Enter super user password and press <ENTER>.
- From the System Maintenance screen, press the <8> key to display the Avoid/Prefer Route Maintenance screen.
- Press the <3> key to display the list of preferred segments. A screen will be displayed prompting you to list preferred segments for a particular state or display preferred segments for all states.

5. Type a state code to display all preferred segments in a particular state or press <ENTER> to display preferred segments in all states. A list of preferred segments will be displayed.

```

MILEMAKER GUIDE #19                                     Copyright 2008
AVOID/PREFER MAINTENANCE                               by Rand McNally & Co.

DISPLAY SEGMENTS IN ALL STATES OR
TYPE STATE ABBREVIATION FOR SEGMENTS IN A PARTICULAR STATE

STATE IL

<ENTER> - TO PROCESS  <ESC> - TO RETURN TO PREVIOUS SCREEN

```

6. To reset a specific segment, designated as preferred, to its original default status, type an “R” in column 1 of the line where the segment is displayed and press the <F1> key. To reset all segments for the state(s), press the <F2> key. Use the <PG UP> or <PG DWN> keys to scroll through the list.

```

MILEMAKER GUIDE #19                                     Copyright 2008
AVOID/PREFER MAINTENANCE                               by Rand McNally & Co.

TO RESET INDIVIDUAL SEGMENTS, PLACE R IN COLUMN 1 <PRESS F1>
TO RESET ALL SEGMENTS <PRESS F2>
-----
PREFERRED SEGMENTS                                     HIGHWAY
R CHICAGO,IL          TO I290/S50,IL          I 290

PAGE UP  PAGE DOWN  <ESC> - TO RETURN TO PREVIOUS SCREEN

```

7. Press the <ESC> key to return to the System Maintenance screen.

---

## Newfoundland Abbreviation

The Newfoundland Abbreviation feature enables you to set the Provincial Code for Newfoundland to either NF or NL.

1. Select option <M> from the Master Menu for System Maintenance.
2. Enter super user password and press <ENTER>.
3. Press the <9> key from the System Maintenance screen. The Newfoundland Abbreviation screen is displayed.

```
MILEMAKER GUIDE #19                               Copyright 2008
NEWFOUNDLAND ABBREVIATION                         by Rand McNally & Co.

F1 - RETURN TO MASTER MENU
 1 - SET NEWFOUNDLAND ABBREVIATION TO NL
 2 - SET NEWFOUNDLAND ABBREVIATION TO NF
<ESC> - RETURN

ABBREVIATION FOR NEWFOUNDLAND IS NF
```

4. Type “1” if you wish to select NL as the Province code for Newfoundland. Type “2” if you wish to select NF as the Province code for Newfoundland.
5. If you have selected NL as the Province code for Newfoundland and are browsing NL locations, you will be given a choice to browse locations in either Newfoundland or Nuevo Leon. Initially locations in Newfoundland will appear on the browse screen as follows:

```

Copyright 2008          MILEMAKER GUIDE #19          Canadian postal codes
by Rand McNally & Co.  MILEAGE/ROUTE INQUIRY SCREEN  (C) 2008
                        PRACTICAL ROUTE ONLY          DMTI Spatial Inc.
=====
LOCATION                SPLC          #    LOCATION                |
-----
1) BA,NL.....        000000 000  | 1) ARGENTIA,NL            |...
2) .....              .....    .   | 2) ARNOLDS COVE,NL       |...
3) .....              .....    .   | 3) ASHUANIPI,NL          |...
4) .....              .....    .   | 4) ASPEN COVE,NL         |...
5) .....              .....    .   | 5) ASTRAY,NL             |...
6) .....              .....    .   | 6) BACK HBR,NL           |...
7) .....              .....    .   | 7) BADGER,NL             |...
8) .....              .....    .   | 8) BADGER QUAY,NL        |...
9) .....              .....    .   | 9) BAIE VERTE,NL         |...
10) .....             .....    .   | 10) BAINÉ HBR,NL         |...
11) .....             .....    .   | 11) BAKERS BRK,NL        |...
12) .....             .....    .   | .....                    |...
13) .....             .....    .   | PAGE UP                   |...
14) .....             .....    .   | PAGE DOWN                 |...
                                | <ESC> TO EXIT BROWSE     |...
                                | ENTER A LINE NUMBER: .. |...
=====
LOCATION NOT FOUND - PRESS F1 TO BROWSE NUEVO LEON

```

- To choose a location in Newfoundland, select a location on the browse screen. To browse Nuevo Leon press F1 and the following browse screen will appear.

```

Copyright 2008          MILEMAKER GUIDE #19          Canadian postal codes
by Rand McNally & Co.  MILEAGE/ROUTE INQUIRY SCREEN  (C) 2008
                        PRACTICAL ROUTE ONLY          DMTI Spatial Inc.
=====
LOCATION                SPLC          #    LOCATION                |
-----
1) BA,NL.....        000000 000  | 1) ACUNA,NL               |...
2) .....              .....    .   | 2) AGUALEGUAS,NL         |...
3) .....              .....    .   | 3) ALLENDE,NL            |...
4) .....              .....    .   | 4) ANAHUAC,NL            |...
5) .....              .....    .   | 5) APODACA,NL            |...
6) .....              .....    .   | 6) BENITO JUAREZ,NL       |...
7) .....              .....    .   | 7) BUSTAMENTE,NL         |...
8) .....              .....    .   | 8) CADEREYTA JIMENEZ,NL   |...
9) .....              .....    .   | 9) CAMARON,NL            |...
10) .....             .....    .   | 10) CERRALVO,NL          |...
11) .....             .....    .   | 11) CHIHUAHUA,NL         |...
12) .....             .....    .   | .....                    |...
13) .....             .....    .   | PAGE UP                   |...
14) .....             .....    .   | PAGE DOWN                 |...
                                | <ESC> TO EXIT BROWSE     |...
                                | ENTER A LINE NUMBER: 1. |...
=====

```

- To choose a location in Nuevo Leon, select a location on this browse screen.

# APPLICATION COMMUNICATION AREA



---

## Chapter Contents

INTRODUCTION.....	76
NAMED PIPES ACA (VERSION 1) .....	77
THE NON-NAMED PIPE VERSION (VERSION 2).....	81
COMMUNICATION BETWEEN CLIENT'S APPLICATION AND ACA.....	82
TCP/IP ACA (VERSION 3): .....	83

---

## Introduction

The Application Communication Area (ACA) enables a client or third party vendor to make mileage / route requests and receive answers from business applications (such as fuel tax, drivers' payroll, etc.) to the UNIX Resident MileMaker (URMM) product.

There are three different types of integration techniques supported between a customer's business applications and the URMM product:

- Named pipes
- Non-named pipes
- TCP/IP

Each technique will be described on the following pages. Before any of the techniques can be initiated, the following steps must be performed:

1. If you are not setting the environment variables in your `.profile`, `.login`, `.cshrc`, or `.kshrc`, execute the `profile.19` file by typing the command:

```
/usr/micro/g19/profile.19
```

---

**Note:**

There is a space between the period and the slash above.

---

2. If the router process is not running, proceed to the `/usr/micro/g19/exe` directory by typing:

```
cd /usr/micro/g19/exe <ENTER>
```

Execute the program `routrproc` (as a background process) by typing:

```
routrproc& <ENTER> or ./routrproc&
```

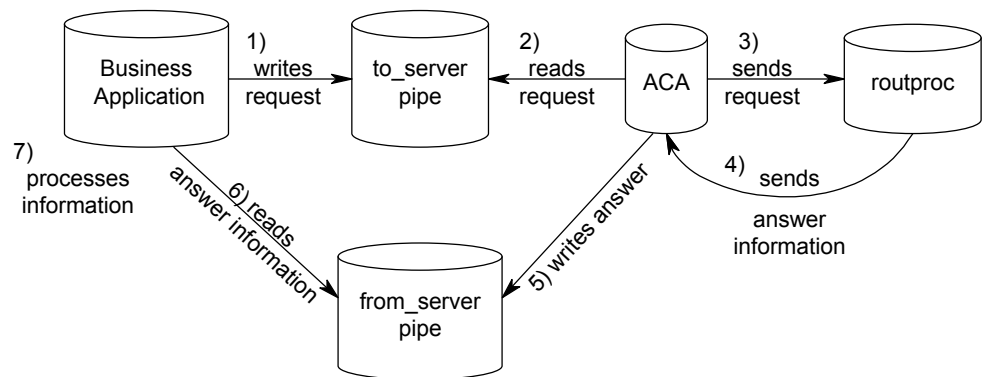
The program, `routrproc`, is executed only one time because all users on the system (those running the base product and the ACA) will be using the same router process.

---

## Named Pipes ACA (Version 1)

The ACA will allow your business applications to communicate with the router process, routproc, to obtain mileage and routes without interaction from the user. “Named Pipes” are files that allow two or more processes to communicate. Any process that refers to the pipes by name may open the pipes for reading or writing. Together, the named pipes version of the ACA allows business applications to send requests via a named request pipe to the ACA. The ACA will pass validated requests to the router process, routproc, for processing. The router process will send the answer information back to the ACA. The ACA will send the answer information back to the named answer pipe. The business application will read the answers from the named answer pipe and process accordingly.

Example:



The high level of overview is depicted above and described below in the following steps:

- 1.** The business application writes a request to the named pipe, to\_server.
- 2.** Once a request is in the to\_server pipe, the ACA reads the pipe. After reading, the to\_server pipe is empty.
- 3.** The ACA performs its necessary processing, then sends the request to the router process, routproc.
- 4.** Routproc processes the request and sends the answer information to the ACA.
- 5.** The ACA processes the information and writes the answer to the answer pipe, from\_server.
- 6.** Once an answer is in the from\_server pipe, the business application reads the answer pipe and receives the answer information.
- 7.** The business application processes the information accordingly.

## Reading and Writing to the Answer Pipes

The process for reading and writing to the answer pipes is described below in the following steps:

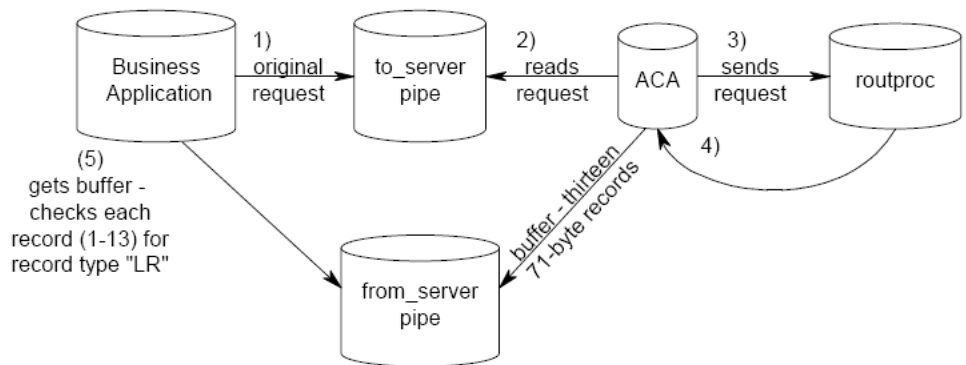
1. The business application opens the named pipes for reading/writing and writes a request to the to\_server pipe in the form of multiple 24-byte records. All other processes must be prevented from sending additional requests until an LR request type is received in the from\_server pipe. Therefore, after the request is written, the business application should close access to the to\_server pipe.

Example:

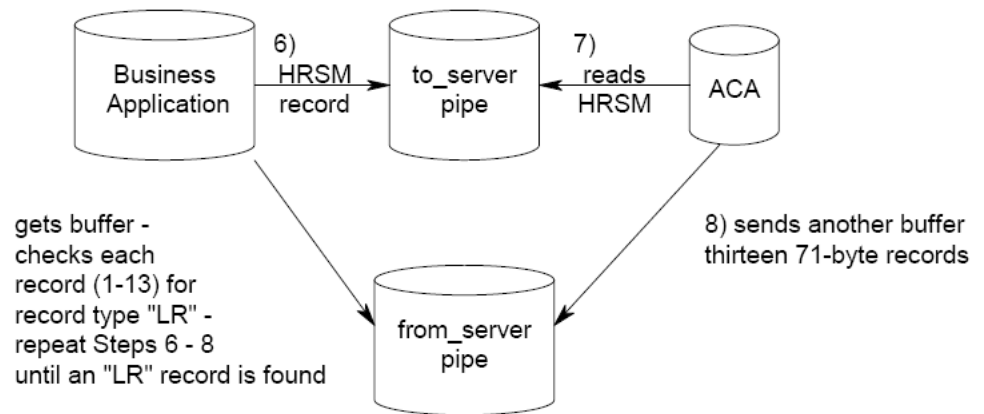
```
-----5---10---15---20-----  
HRMI DRIVER TOM SMITH  
  
ORCHICAGO IL  
VIOAK PARK IL  
VIBARRINGTON COIL  
DTROSEMONT COIL
```

2. The ACA validates and formats the request. A valid request is sent to the router process, routproc, for processing.
3. The router process sends the answer information to the ACA.
4. The ACA writes a buffer of up to thirteen 71-byte answer records back to the from\_server pipe.
5. The business application reads the from\_server pipe to obtain the buffer of records. Each record in the buffer must be checked by the business application to determine if a record type of LR is in the buffer. The LR record type indicates the end of the answer record. If an LR record is received, the next request can be written to the to\_server pipe.
6. If the LR record is not in the buffer of up to thirteen 71-byte answer records, the business application sends an HR record with a send more record type to the to\_server pipe.
7. After the ACA reads the HRSM record from the to\_server pipe, another buffer of records (up to thirteen 71-byte records) will be written to the from\_server pipe. Steps 5 through 7 are repeated until an LR record is received.
8. An LR record is received in the buffer. This indicates that a complete answer is received. Access to the to\_server pipe may be opened again.
9. The next request may be written to the to\_server pipe.

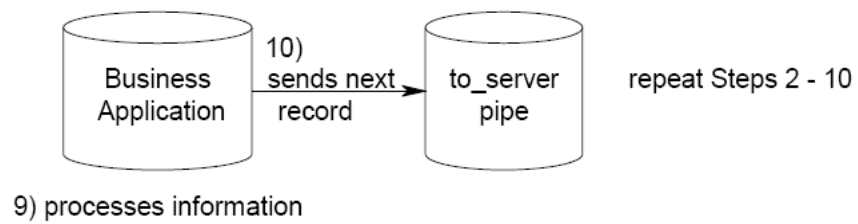
Example:



If an "LR" record was not found:



Found "LR" Record:



## Responsibility of the Business Application

It is the responsibility of the business application to:

- Write requests in the proper record layout to the to\_server pipe.
- Control access to the pipes by:
  - 1) Locking other processes from writing to the to\_server pipe until an LR record type is received
  - 2) Opening the to\_server pipe after an LR record type is received signaling that new request can be sent.
  - 3) Closing the named pipes after the last business application is finished. When the pipes are closed, the operating system will send a signal to the ACA that no further communication will occur. At this point, the ACA will terminate.
  - 4) Writing an application that keeps the pipes open indefinitely, thereby keeping the ACA running in background also indefinitely.

## Creating Named Pipes

To create the named pipe, type in the following commands when you install the UNIX Resident MileMaker or at any other time before using the named pipe version of the ACA. It is highly recommended that you be logged in as “root” when executing the commands. If “mknod” is not the command for creating named pipes on your version of UNIX, use the command that is appropriate for your operating system.

```
mknod /usr/micro/to_server p <ENTER>
```

```
mknod /usr/micro/from_server p <ENTER>
```

```
chmod a+rw /usr/micro/to_server /usr/micro/from_server <ENTER>
```

**Note:** If you want to create the pipes in another directory location, replace /usr/micro in the example above with the new path. You will also need to change the environment variables below to reflect the new path.

```
NAMED_PIPE_TO_SERVER=/usr/micro/to_server
```

```
NAMED_PIPE_FROM_SERVER=/usr/micro/from_server
```

```
export NAMED_PIPE_TO_SERVER NAMED_PIPE_FROM_SERVER
```

## Starting The ACA

1. If you are not setting the environment variables in your .profile, .login, .cshrc, or .kshrc, execute the profile.19 file by typing the command:

```
/usr/micro/g19/profile.19
```

---

**Note:**

There is a space between the period and the slash above.

---

2. If the router process is not running, proceed to the `/usr/micro/g19/exe` directory by typing:

```
cd /usr/micro/g19/exe <ENTER>
```

Execute the program `routrproc` (as a background process) by typing:

```
routrproc& <ENTER> or ./routrproc&
```

The program, `routrproc`, is executed only one time because all users on the system (those running the base product and the ACA) will be using the same router process.

3. Type the following command:

```
/usr/micro/g19/exe/aca & <ENTER>
```

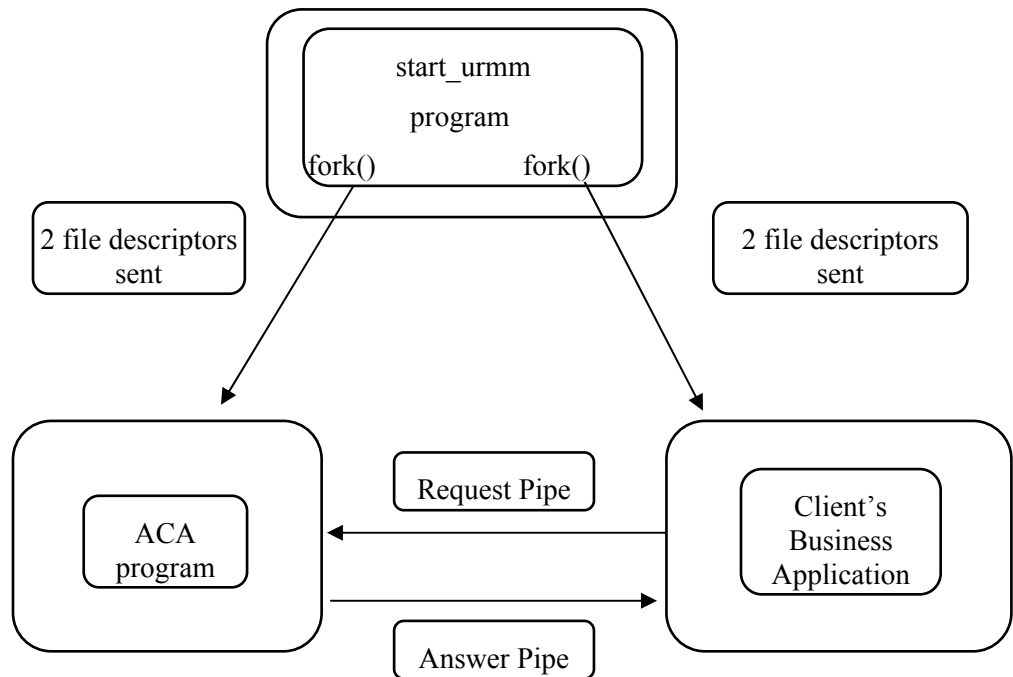
Type this command only if the ACA is not already running. Only one copy of the ACA should be active for each system.

4. Execute your business application.

---

## The Non-Named Pipe Version (Version 2)

The non-named version of the ACA enables the user to create a business application which can send requests to and receive responses from the URMM product. Please refer to the illustration below:



Non-named pipes are similar to named pipes except that the pipes are not created or stored on a UNIX file system. Non-named pipes are created in an application, (i.e. `start_urmm`), using the 'C' language's `pipe()` function call. Rand McNally & Company supplies source code (`start_urmm.c` in the `/usr/micro/g19/c.online` directory) and an executable (called `start_urmm`).

The `start_urmm` program starts two additional UNIX processes: the first, the ACA application, is supplied in its entirety by Rand McNally & Company (this application processes mileage and routing information from the URMM); the second UNIX process started by the `start_urmm` program is the client's business application. This is the business application that needs miles and / or routes. A sample application, `client_app`, is provided by Rand McNally & Company to assist you in developing your own application.

Note that the name of your application must first be supplied to the `start_urmm` program. There is an environment variable, called `APPL_EXE`, that must contain the client's business application name. If this environment variable is not supplied, then the client's business application will not be started by the `start_urmm` program.

---

## Communication Between Client's Application and ACA

Communication between the client's business application and the ACA is established through the use of "non-named pipes". Once the non-named pipes are created, they are treated in a manner identical to file descriptors. The actual values of the pipes will be supplied by the `start_urmm` program when function calls are made to start the ACA and client's business application. Two pipe file descriptors (as strings, which need to be converted to integers) will be passed by each `fork()` function call from `start_urmm` to start the ACA and the client's business application. The ACA and the client's business application pass data to each by using one parameter to send data and the other to receive data.

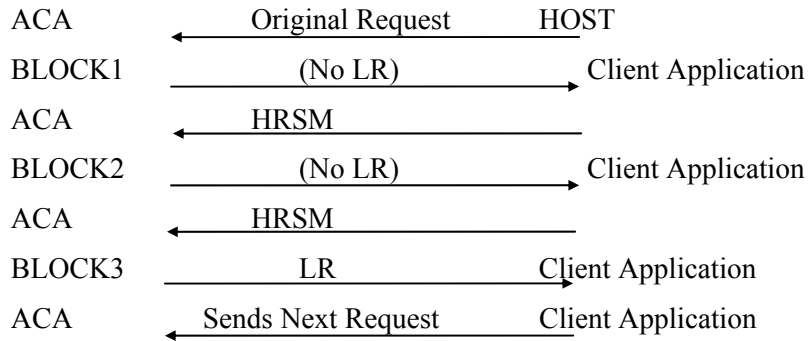
The client's business application uses one of the non-named pipes to send formatted request records to the ACA. The other non-named pipe is used to receive the formatted answer records from the ACA. Similarly, the ACA uses a non-named pipe to receive formatted request records from the client's business application. The other is used to send formatted answer records to the client's business application.

For more details regarding the function calls, parameter types and values used to facilitate the environment described here, please refer to the source code files `start_urmm.c`, `client_app1.c` and `client_app2.c` located in the `/usr/micro/g19/c.online` directory.

The client application sends a request to the ACA, which processes the data and sends answers back to the client application. The client application (user supplied software) must evaluate the answer data. Answers are sent back to the client application as a buffer of answer records.

1. The client application sends a request to the ACA.

2. The ACA processes the request and sends a buffer of up to thirteen 71-byte answer records back to the client application.
3. The client application evaluates the buffer looking for a record type of LR. If none exists, the client application sends a Header Record (HR) with a Send More (SM) record type to the ACA. (HRSM + 20 Spaces)
4. The ACA sends the next buffer to the client application. This process continues until a Last Record (LR) is found in the record type field. Every record in an answer buffer must be evaluated to see if an LR record has been sent.
5. The client application sends the next request and the process continues until all requests have been answered. The flow looks like this:



The ACA is configured to return up to 13 answer records per block of answer records.

---

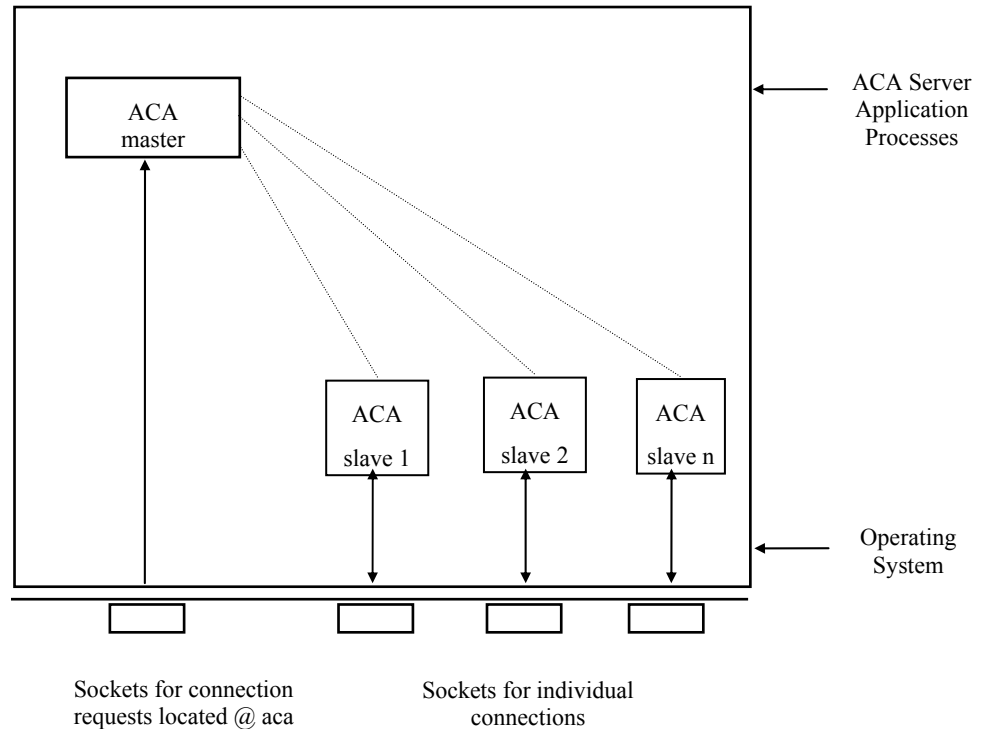
## TCP/IP ACA (Version 3):

The TCP/IP integration technique takes advantage of two widely used network protocols TCP (Transmission Control Protocol) and IP (Internet Protocol). When used together, these protocols are commonly known as TCP/IP. Most UNIX operating systems come equipped with an implementation of TCP/IP. Because TCP/IP is good for both intra-computer and inter-computer communications, it can be used by processes on the same computer or processes running on different computers that are networked or electronically connected.

Transmission Control Protocol (TCP) provides reliable, end-to-end stream transport. Internet Protocol (IP) is the universal protocol of the “Internet” that defines the unit of transfer to be the IP datagram and provides the universal addressing scheme for hosts and gateways. Combining the two protocols creates reliable connection oriented communications between all networked or electronically connected computers.

Rand McNally & Company uses TCP/IP in the ACA. Sockets (part of the TCP/IP implementation in UNIX) are used to communicate with the client’s business applications on the same computer or on networked computers.

In this version of the ACA, `routrproc` must be started in the background. The TCP/IP integration version is started with the following command: `aca tcp&`. This will start the ACA as a background process. The ACA becomes what is known as a concurrent, connection oriented TCP/IP server. The drawing below describes the situation:



As the drawing demonstrates, the master ACA server process does not communicate with the “clients” (applications that need miles and / or routes) directly. Instead, it merely waits at port 1031 for the next connection request. Once a request has arrived, the system returns the socket descriptor for the new slave socket to use for that connection. The master ACA server process creates a slave ACA process to handle the connection, and allows the slave ACA to operate concurrently. At any time the server consists of one master ACA process and zero or more slave ACA processes. Using this technique, every client’s business application will have its own slave ACA to serve its miles and routes needs.

Rand McNally & Company has included in the URMM distribution an example “client” application (called `tcp_client`). It is comprised of two ‘C’ source files and one ‘C’ header file. The files are named `tcp_client.c`, `client_funcs.c` and `client_app.h`. The file `tcp_client.c` shows how a “client” handles the creation of a socket for its use and the connection to the master ACA server. The files `client_funcs.c` contains the code to get input from a user via the keyboard, format the request, write the request to the socket, read the answer records from the socket and finally display the answers on the screens. The `client_app.h` file contains the declarations for the various variables and structures used in the two source files.

Before running the `tcp_client` process, both `routproc` and `ACA` (TCP/IP version) should be running in the background. Type the following command:

```
tcp_client <host name> <ENTER>
```

The host name is listed as an entry in the `/etc/hosts` file on the computer running the master `ACA` server. For example, if the host running the master `ACA` server is on a computer whose host name is “570svr” and this name is in the `/etc/hosts` file, the command to run the TCP/IP “client” would be:

```
tcp_client 570svr <ENTER>
```

When the `tcp_client` is displayed, the system will prompt you for information regarding your request.



# RECORD FORMATS



---

## Chapter Contents

<b>RECORD FORMATS.....</b>	<b>88</b>
<b>Description of All Request Types .....</b>	<b>88</b>
<b>The Request File Structure.....</b>	<b>89</b>

---

## Record Formats

### Description of All Request Types

<b>Inquiry Type</b>	<b>Product Options On the Master Menu</b>
MI: HHG Mileage Inquiry	<1>
MD: Single Origin Multiple Destination Inquiry	<2>
OP: Optimization Inquiry (No HHG rules applied)	
HA: HHG Audit Route Inquiry	<3>
HS: HHG State Mileage Breakdown Only Inquiry	<4>
HB: Full HHG Route with State Mileage Breakdown Inquiry	<5>
PR: Practical Route Only Inquiry	<6>
PS: Practical State Mileage Breakdown Only Inquiry	<7>
PB: Practical Route with State Mileage Breakdown Inquiry	<8>
PM: Practical Miles Only Inquiry	<9>

The record formats described in this section reflect the data transmissions between the Application Communication Area (ACA) and the Client Application.

## The Request File Structure

The request file contains four types of 24-byte records: the Header record, the Origin record, the Via record, and the Destination record.

### Record sequence for a request

Record Name	Characters in Cols 1-2	Explanation
Header Record	HR	This record contains the type of request and the destination city number, if the request is for optimization. In addition it can contain user specified information which is transferred
Origin Record	OR	Starting point of the trip.
Via Record	VI	Intermediate stop-off point (optional)
Destination Record	DT	End point of the trip.

### Header Record

The header record tells the ACA the type of request being sent and the destination city number in an optimization request. The optional user specified information can also be used to separate requests and specify information supplied by the user. For example, if you wish to keep a trip number, driver number, or bill of lading number attached to the request, simply put this information into columns 7-24 of the Header Record. All non-occupied positions in all fields should contain spaces. If the entire user specified information is not used, the remainder of the field must contain spaces.

### Record Size: 24 bytes

Cols.	Number of Characters	Sample Content	Explanation
1-2	2	HR	Always "HR" to indicate that this is a Header record.
3-4	2	MI	Type of request. One of the following list: MI, MD, OP, HA, HS, HB, PR, PS, PM, or PB.
5-6	2	04	This field is only used for an optimization request (OP). If the request is not for optimization, the field must contain two spaces. Please read the notes below regarding how to specify optimization.
7-24	18	Info.	User supplied information.

An optimization request must have a minimum of four locations and a maximum of eleven locations. To specify a predetermined destination, place the stop-off number

of the destination location in the request Header Record destination city field. The destination number is determined by the order in which the locations were entered. For example, in the following optimization request:

```
HROPxxDRIVER: TOM SMITH
ORCHICAGO IL
VIOAK PARK IL
VIBARRINGTON COIL
DTROSEMONT COIL
```

If Oak Park, IL, is the destination for the request the characters 02 are placed inside the request Header Record's destination city field (area marked as "xx" in the example on the previous page). If Rosemont, Co, IL, is requested as the final destination, the request Header Record's destination city field contains the characters 04. If a round trip is specified the final destination is Chicago, IL, and the destination city field contains the characters 01.

### Origin Record

The Origin record indicates the starting point of the trip.

**Record Size: 24 bytes**

<b>Cols.</b>	<b>Number of Characters</b>	<b>Sample Content</b>	<b>Explanation</b>
1-2	2	OR	The "OR" indicates that this is an Origin record.
3-20	18	BARRINGTON	City name, ZIP Code, or SPLC code. If this is an SPLC, the following two fields contain spaces.
21-22	2	LA	County name abbreviated. It contains spaces if a county is not needed.
23-24	2	IL	State or province abbreviated.

### Via Record

The Via record is optional. It is used to indicate a stop-off point in the route. Each route may contain as many as 12 Via records.

**Record Size: 24 bytes**

<b>Cols.</b>	<b>Number of Characters</b>	<b>Sample Content</b>	<b>Explanation</b>
1-2	2	VI	The “VI” indicates that this is a Via record.
3-20	18	CHICAGO	City name, ZIP Code, or SPLC code. If this is an SPLC, then the following two fields contain spaces.
21-22	2	LA	County name abbreviated. It contains spaces if a county is not needed.
23-24	2	IL	State or province abbreviated.

All routes can contain up to 12 Via records with the exception of Optimized requests.

### Destination Record

The Destination record indicates the destination or final stopping point.

**Record Size: 24 bytes**

<b>Cols.</b>	<b>Number of Characters</b>	<b>Sample Content</b>	<b>Explanation</b>
1-2	2	DT	The “DT” indicates that this is a destination record.
3-20	18	BOSTON	City name, ZIP Code, or SPLC code. If this is an SPLC, then the following two fields are spaces.
21-22	2		County name abbreviated. It contains spaces if a county is not needed.
23-24	2	MA	State name abbreviated.

The last city’s request record must be a Destination Record. The minimum requirement for a request is one Header record, one Origin record and one Destination record.

## The Answer File Structure

The answer file contains 7 types of 71-byte records: Header record, Mileage record, Via record, Route record, State Mileage Breakdown record, Error record, Last Answer record.

### Record sequence for an answer

<b>Record Name</b>	<b>Characters in Cols 1-2</b>	<b>Explanation</b>
Header Record	HR	This record contains the type of request. It can also contain user information which is transferred back to the host.
Mileage Record	MI	This record contains the origin and destination cities. It also contains the total toll, total non-toll, and total mileage between the origin and destination cities for certain request types.
Practical Miles	PM	This record follows the MI record and is used for returning results from a PM, or Practical Mileage Inquiry, request.
Via Record	VI	This record contains the intermediate stop-off point and the mileage from the previous point to this stop-off point.
Route Record	DR	This record contains the detailed route information on any given segment of a trip.
State Mileage Record	SM	This record contains the state codes and total toll, total non-toll, and total mileage in each state along the route.
Error Record	ER	This record contains an error code if the request cannot be completed.
End of Answer Record	LR	This record indicates the end of a set of answer records for a given request.

## Header Record

The Header record returns the type of request that was sent and the optional user-specified information.

### Record Size: 71 bytes

<b>Cols.</b>	<b>Number of Characters</b>	<b>Sample Content</b>	<b>Explanation</b>
1-2	2	HR	Always "HR" to indicate that this is a Header record.
3-4	2	MI	Type of request. One of the following list: MI, MD, OP, HA, HS, HB, PR, PS, PM, or PB.
5-22	18	Info.	User-supplied information.
23-71	49	Spaces	

## Mileage Record

This record follows the Header record for all inquiry types and contains the origin and destination points and the total toll, total non-toll, and total mileage between specified points for inquiry types: HHG State Mileage Breakdown Only Inquiry (HS), Full HHG Route with State Mileage Breakdown Inquiry (HB), Practical Route Only Inquiry (PR), Practical State Mileage Breakdown Only Inquiry (PS), and Practical Route with State Mileage Breakdown Inquiry (PB). The fields for total toll and total non-toll miles are zero for request types: HHG Mileage Inquiry (MI), Single Origin Multiple Destination Inquiry (MD), Optimization Inquiry (OP), and HHG Audit Route Inquiry (HA) and Practical Miles Only (PM). If SPLCs are used in the request, the answers are returned using SPLCs. If 5-digit ZIP Codes are used in the request, the answers are returned using 5-digit ZIP Codes.

### Record Size: 71 bytes

Cols.	Number of Characters	Sample Content	Explanation
1-2	2	MI	Always "MI" to indicate that this is a Mileage record.
3-20	18	BARRINGTON	Origin location name.
21-22	2	LA	Origin county name (abbreviated) if needed.
23-24	2	IL	Origin state name (abbreviated).
25-42	18	CHICAGO	Destination location.
43-44	2		Destination county name. Spaces if not needed.
45-46	2	IL	Destination state name (abbreviated).
47-51	5	00018	Total miles between origin and destination points.
52-56	5	00005	Total toll miles between origin and destination points.
57-61	5	00013	Total non-toll miles between origin and destination points.
62-71	10	Spaces	

There are multiple records for a Single Origin Multiple Destination Inquiry (MD) request.

### Practical Mileage Record

This record follows the MI record and is used for returning results from a PM, or Practical Mileage Inquiry, request.

**Record Size: 71 bytes**

<b>Cols.</b>	<b>Number of Characters</b>	<b>Sample Content</b>	<b>Explanation</b>
1-2	2	DM	Detail Mileage (DM) record used with a Practical Mileage request type.
3-29	27	NORTHBROOK,IL	Requested city (with county if necessary) and state.
30-35	6	0:49	Accumulated time for request.
36-40	5	4	Miles between previous DM point and current DM point.
41-71	31	Spaces	

### Via Record

The Via record contains the name of an intermediate stop-off point, as well as the mileage from the previous point (either the origin or the previous stop-off point) to this stop-off point.

**Record Size: 71 bytes**

<b>Cols.</b>	<b>Number of Characters</b>	<b>Sample Content</b>	<b>Explanation</b>
1-2	2	VI	Always "VI" to indicate that this is a Via record.
3-20	18	NEW YORK	Via city name.
21-22	2		Via city's county name, if needed. Otherwise, the file contains spaces.
23-24	2	NY	Via state name (abbreviated).
25-29	5	00898	Miles from previous via or origin city.
30-71	42	Spaces	

This type of answer record is returned for both an HHG Mileage Inquiry (MI) and an Optimization Inquiry (OP).

## Route Record

The Route record contains the detailed route information for a single segment of a route.

### Record Size: 71 bytes

Cols.	Number of Characters	Sample Content	Explanation
1-2	2	DR	Always "DR" to indicate that this is a Route record.
3-18	16	I 90	This contains the highway segment's name.
19-20	2	SE	Direction of travel on the highway segment.
21-24	4	290	Miles to travel on the highway segment.
25-51	27	CHICAGO,IL	End location on the highway segment.
52-57	6	xx9:00	Total accumulated time to end of highway segment from the origin city in the format, HHH:MM (where H represents hours and M represents minutes)..
58-62	5	450	Total accumulated miles to end of highway segment from the origin city.
63-71	9	HHG INDEX	Highway notes such as HHG INDEX mileage, toll roads (TL), toll booths (TB), ferries (FY), via (VIA), etc.

This type of answer record is returned for an HHG Audit Route Inquiry (HA), a Full HHG Route with State Mileage Breakdown Inquiry (HB), a Practical Route Only Inquiry (PR), and a Practical Route with State Mileage Breakdown Inquiry (PB).

The total accumulated time field is filled with spaces for all HHG inquiries with these answer records.

## State Mileage Breakdown Record

This record contains state codes in alphabetical order and the total mileage for each state in the route.

**Record Size: 71 bytes**

Cols.	Number of Characters	Sample Content	Explanation
1-2	2	SM	Always "SM" to indicate that this is a State Mileage Breakdown record.
3-4	2	AB	First or next state alphabetically in the route.
5-9	5	00022	Total miles for the first or next state.
10-14	5	00015	Total toll miles for the first or next state.
15-19	5	00007	Total non-toll miles for the first or next state.
20-21	2	AL	Second state alphabetically in the route.
22-26	5	00100	Total miles for the next state.
27-31	5	00050	Total toll miles for the next state.
32-36	5	00050	Total non-toll miles for the next state.
37-38	2	FL	Next state alphabetically in the route.
39-43	5	00100	Total miles for the next state.
44-48	5	00050	Total toll miles for the next state.
49-53	5	00050	Total non-toll miles for the next state.
54-55	2	GA	Next state alphabetically in the route.
56-60	5	00100	Total miles for the next state.
61-65	5	00050	Total toll miles for the next state.
66-70	5	00050	Total non-toll miles for the next state.
71	1	Space	

This type of record is sent for an HHG State Mileage Breakdown Only Inquiry (HS), a Full HHG Route with State Mileage Breakdown Inquiry (HB), a Practical State Mileage Breakdown Only Inquiry (PS), and a Practical Route with State Mileage Breakdown Inquiry (PB). If the route travels through more than four states, the answer records contain as many State Mileage Breakdown records as necessary to show all mileage in all states.

### **Error Record**

The Error Record is sent when an error occurs for the current inquiry.

#### **Record Size: 71 bytes**

<b>Cols.</b>	<b>Number of Characters</b>	<b>Sample Content</b>	<b>Explanation</b>
1-2	2	ER	Always "ER" to indicate that this is an Error record.
3-4	2	18	A number corresponding to a set of possible error codes. For example: out of transactions, invalid city, city needs a county qualifier, etc. Some include numbers to identify the point in error.
5-71	67	Spaces	

### **End of Answer Record**

The End of Answer Record is the last record for a given request in the answer file. It is used to indicate the end of information for the trip.

#### **Record Size: 71 bytes**

<b>Cols.</b>	<b>Number of Characters</b>	<b>Sample Content</b>	<b>Explanation</b>
1-2	2	LR	Always "LR" to indicate that this is an End of Answer record.
3-71	69	Spaces	

The client application sends a request to the ACA, which processes the data and sends it back to the client application. The client application (user supplied software) must evaluate the answer data. Answers are sent back to the client application as a buffer of answer records.

# ERROR CODES



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## Chapter Contents

**ERROR CODES..... 100**

---

## Error Codes

Invalid request type	01
Invalid city # 1	05
Invalid city # 2	06
Invalid city # 3	07
Invalid city # 4	08
Invalid city # 5	09
Invalid city # 6	10
Invalid city # 7	11
Invalid city # 8	12
Invalid city # 9	13
Invalid city #10	14
Invalid city #11	15
Invalid city #12	16
Invalid city #13	17
Invalid city #14	18
Invalid state # 1	20
Invalid state # 2	21
Invalid state # 3	22
Invalid state # 4	23
Invalid state # 5	24
Invalid state # 6	25
Invalid state # 7	26
Invalid state # 8	27
Invalid state # 9	28
Invalid state #10	29
Invalid state #11	30
Invalid state #12	31
Invalid state #13	32
Invalid state #14	33

Need county qualifier # 1	35
Need county qualifier # 2	36
Need county qualifier # 3	37
Need county qualifier # 4	38
Need county qualifier # 5	39
Need county qualifier # 6	40
Need county qualifier # 7	41
Need county qualifier # 8	42
Need county qualifier # 9	43
Need county qualifier #10	44
Need county qualifier #11	45
Need county qualifier #12	46
Need county qualifier #13	47
Need county qualifier #14	48
Secondary Error Code	49
Route error code # 1	50
Route error code # 2	51
Route error code # 3	52
Route error code # 4	53
Route error code # 5	54
Route error code # 6	55
Route error code # 7	56
Route error code # 8	57
Route error code # 9	58
Route error code #10	59
Route error code #11	60
Route error code #12	61
Route error code #13	62
Route error code #14	63
Invalid ZIP Request Type	64

Multiple ZIP city # 1	65
Multiple ZIP city # 2	66
Multiple ZIP city # 3	67
Multiple ZIP city # 4	68
Multiple ZIP city # 5	69
Multiple ZIP city # 6	70
Multiple ZIP city # 7	71
Multiple ZIP city # 8	72
Multiple ZIP city # 9	73
Multiple ZIP city #10	74
Multiple ZIP city #11	75
Multiple ZIP city #12	76
Multiple ZIP city #13	77
Multiple ZIP city #14	78
Request in progress	79
Calc. point error # 1	80
Calc. point error # 2	81
Calc. point error # 3	82
Calc. point error # 4	83
Calc. point error # 5	84
Calc. point error # 6	85
Calc. point error # 7	86
Calc. point error # 8	87
Calc. point error # 9	88
Calc. point error #10	89
Calc. point error #11	90
Calc. point error #12	91
Calc. point error #13	92
Calc. point error #14	93
No dup. cities for optimization	94
License Period Expired	95
Out of transactions	96

Too many cities for optimization	97
Too few cities for optimization	98
Did not purchase optimization	99



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## Chapter Contents

<b>REQUEST/ANSWER EXAMPLES .....</b>	<b>106</b>
<b>HHG Mileage Inquiry .....</b>	<b>106</b>
<b>Single Origin Multiple Destination Inquiry .....</b>	<b>107</b>
<b>Optimization Inquiry; No Destination Specified.....</b>	<b>108</b>
<b>Optimization Inquiry; Round Trip is Specified .....</b>	<b>109</b>
<b>Optimization Inquiry; Specific Destination Oak Park, IL.....</b>	<b>110</b>
<b>HHG Audit Route Inquiry.....</b>	<b>111</b>
<b>HHG State Mileage Breakdown Only Inquiry .....</b>	<b>112</b>
<b>Full HHG Route with State Mileage Breakdown Inquiry .....</b>	<b>113</b>
<b>Practical Route Only Inquiry.....</b>	<b>114</b>
<b>Practical State Mileage Breakdown Only Inquiry.....</b>	<b>115</b>
<b>Practical Route with State Mileage Breakdown Inquiry .....</b>	<b>116</b>
<b>Practical Route Miles Only Inquiry.....</b>	<b>117</b>

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## Request/Answer Examples

These examples have been set up below to demonstrate the order and size of the input and output records. A request requires three 24-byte records plus an End of Transmission character. These are the Header, Origin, and Destination records. An additional 24-byte record is required for every stop-off point. Each request is sent as one buffer.

### HHG Mileage Inquiry

#### Request:

```
          1          2
-----5-----0-----5-----0-----
HRMI DRIVER: TOM SMITH
ORCHICAGO          IL
VIOAK PARK         IL
VIBARRINGTON      COIL
DTROSEMONT        COIL
```

#### Answer:

```
          1          2          3          4          5          6          7
-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----
HRMIDRIVER: TOM SMITH
MICHICAGO          ILROSEMONT          COIL  69  0  0
VIOAK PARK         IL  17
VIBARRINGTON      COIL  31
VIROSEMONT        COIL  21
LR
```

# Single Origin Multiple Destination Inquiry

## Request:

```
          1          2
-----5-----0-----5-----0-----
HRMD DRIVER: TOM SMITH
ORCHICAGO          IL
VIOAK PARK         IL
VIROSEMONT        COIL
DTBARRINGTON      COIL
```

## Answer:

```
          1          2          3          4          5          6          7
-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----
HRMDDRIVER: TOM SMITH
MICHICAGO          ILOAK PARK          IL  17  0  0
MICHICAGO          ILROSEMONT          COIL 14  0  0
MICHICAGO          ILBARRINGTON        COIL 35  0  0
LR
```

## Optimization Inquiry; No Destination Specified

### Request:

```
          1          2
-----5-----0-----5-----0-----
HROP DRIVER: TOM SMITH
ORCHICAGO          IL
VIOAK PARK         IL
VIBARRINGTON      COIL
DTROSEMONT        COIL
```

### Answer:

```
          1          2          3          4          5          6          7
-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----
HROPDRIVER: TOM SMITH
MICHICAGO          ILBARRINGTON      COIL  47    0    0
VIOAK PARK         IL    17
VIROSEMONT        COIL    9
VIBARRINGTON      COIL    21
LR
```

**Note:** For an optimization request with no pre-determined destination, the destination field of the request Header Record should contain two spaces. In addition, notice how the cities were translated from the request to the answer.

## Optimization Inquiry; Round Trip is Specified

### Request:

```
          1          2
-----5-----0-----5-----0-----
HROP01DRIVER: TOM SMITH
ORCHICAGO          IL
VIOAK PARK         IL
VIBARRINGTON       COIL
DTROSEMONT         COIL
```

### Answer:

```
          1          2          3          4          5          6          7
-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----
HROPDRIVER: TOM SMITH
MICHICAGO          ILBARRINGTON       COIL  82    0    0
VIOAK PARK         IL    17
VIROSEMONT         COIL    9
VIBARRINGTON       COIL  21
VICHICAGO          IL    35
LR
```

**Note:** For a round trip optimization request, place "01" in the request destination city field. Notice that the Mileage Record reflects that this a round trip.

## Optimization Inquiry; Specific Destination Oak Park, IL

### Request:

```
          1          2
-----5-----0-----5-----0-----
HROP02DRIVER: TOM SMITH
ORCHICAGO          IL
VIOAK PARK         IL
VIBARRINGTON      COIL
DTROSEMONT        COIL
```

### Answer:

```
          1          2          3          4          5          6          7
-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----
HROPDRIVER: TOM SMITH
MICHICAGO          ILOAK PK          IL  65  0  0
VIBARRINGTON      COIL  35
VIROSEMONT        COIL  21
VIOAK PK          IL    9
LR
```

### Note:

To specify a pre-determined destination place the stop-off number of the destination city in the request Header Record destination city field. In this example, Oak Park, IL was the second city in the request. Therefore, the characters 02 were placed inside the request Header Record. If Rosemont, CO, IL, were requested as the final destination, the destination city number in the request Header Record would have been the characters 04.

# HHG Audit Route Inquiry

## Request:

```
          1          2
-----5-----0-----5-----0-----
HRHA  DRIVER: TOM SMITH
ORCHICAGO          IL
VIMEMPHIS          TN
DTWEST MEMPHIS    AR
```

## Answer:

```
          1          2          3          4          5          6          7
-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----
HRHADRIVER: TOM SMITH
MICHICAGO          ILWEST MEMPHIS          AR  542    0  542
DRCHICAGO, IL      534MEMPHIS, TN          534HHG INDEX
DRUS   51          N    ON OF MEMPHIS, TN          534
DRI    40          W    5E OF W MEMPHIS, AR        539
DRUS   70          S    3W MEMPHIS, AR            542
LR
```

## Note:

On an HHG Audit Route Inquiry, the detail route line information contains the summarization line, the first "DR" record above, for routes between HHG Key Points. Also note that on this type of inquiry the accumulated time field contains all spaces.

# HHG State Mileage Breakdown Only Inquiry

## Request:

```

          1          2
-----5-----0-----5-----0-----
HRHS DRIVER: TOM SMITH
ORCHICAGO          IL
VIDETROIT          MI
VITORONTO          ON
VIGARY             IN
DTCOLUMBIA        MO
  
```

## Answer:

```

          1          2          3          4          5          6          7
-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----
HRHSDRIVER: TOM SMITH
MICHICAGO          ILCOLUMBIA          MO 1354  31 1323
SMIL 291  13 278IN  91  14  77MI 525  2 523MO  97  0  97
SMON 350  2 348
LR
  
```

# Full HHG Route with State Mileage Breakdown Inquiry

## Request:

```

          1          2
-----5-----0-----5-----0-----
HRHB DRIVER: TOM SMITH
ORCHICAGO          IL
VIOAK PARK         IL
VIROSEMONT        COIL
DTBARRINGTON      COIL
  
```

## Answer:

```

          1          2          3          4          5          6          7
-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----
HRHBDRIVER: TOM SMITH
MICHICAGO          ILBARRINGTON      COIL  47    0  47
DRI   90           W   11W OF JEFFERSON PK, IL          11
DRIL  43           S   6OAK PK, IL                      17VIA
DRIL  43           N   6W OF JEFFERSON PK, IL          23
DRIL  72           W   3ROSEMONT      , CO, IL        26VIA
DRIL  72           W   1ORCHARD PL, IL                 27
DRUS  12           N   3DES PLAINES, IL                 30
DRUS  14           W   16NE OF BARRINGTON  , CO, IL    46
DRIL  59           SW  1BARRINGTON    , CO, IL    47
SMIL  47    0    47
LR
  
```

## Practical Route Only Inquiry

### Request:

```

          1          2
-----5-----0-----5-----0-----
HRPR DRIVER: TOM SMITH
ORCHICAGO          IL
VIOAK PARK         IL
VIROSEMONT        COIL
DTBARRINGTON      COIL
  
```

### Answer:

```

          1          2          3          4          5          6          7
-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----
HRPRDRIVER: TOM SMITH
MICHICAGO          ILBARRINGTON      COIL  51    9    42
DRI   90           W   11W OF JEFFERSON PK, IL      0:18  11
DRIL  43           S   6OAK PK, IL                  0:34  17VIA
DRIL  43           N   6W OF JEFFERSON PK, IL      0:50  23
DRIL  72           W   3ROSEMONT      , CO, IL      0:56  26VIA
DRIL  72           W   1ORCHARD PL, IL              0:58  27
DRUS  12           S   1W OF ROSEMONT      , CO, IL    1:00  28
DRI  190           E   1NW OF ROSEMONT      , CO, IL    1:01  29
DRI   90           W   9S OF ROLLING MDWS, IL        1:13  38TL
DRIL  53           N   4SE OF PALATINE, IL              1:18  42
DRUS  14           W   8NE OF BARRINGTON      , CO, IL    1:33  50
DRIL  59           SW  1BARRINGTON      , CO, IL      1:36  51
LR
  
```

# Practical State Mileage Breakdown Only Inquiry

## Request:

```
          1          2
-----5-----0-----5-----0-----
HRPS DRIVER: TOM SMITH
ORCHICAGO          IL
VIDETROIT          MI
VITORONTO          ON
VIGARY             IN
DTCOLUMBIA        MO
```

## Answer:

```
          1          2          3          4          5          6          7
-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----
HRPSDRIVER: TOM SMITH
MICHICAGO          ILCOLUMBIA          MO 1400  46 1354
SMIL 295  13 282IN  95  27  68MI 433  2 431MO  97  0  97
SMON 480  4 476
LR
```



# Practical Route Miles Only Inquiry

## Request:

```
          1          2
-----5-----0-----5-----0-----
HRPM DRIVER: TOM SMITH
ORCHICAGO          IL
VIOAK PARK         IL
VIROSEMONT        COIL
DTBARRINGTON      COIL
```

## Answers:

```
          1          2          3          4          5          6          7
-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----5-----0-----
HRPMDRIVER: TOM SMITH
MICHICAGO          ILBARRINGTON      COIL  51    9    42
DMOAK PK, IL          0:34    17
DMROSEMONT          , CO, IL        0:56    9
DMBARRINGTON        , CO, IL        1:36    25
LR
```

