

Merging Data From Multiple Downloads

Introduction

On larger scale data collection projects where multiple computers are used to gather data from a number of data collection sites, a data collection management system becomes necessary. A good data collection management system should:

- Prevent data loss from incorrect database merging and overwriting
- Centralize the data in one location
- Prevent repetitive operations
- Simplify data collection operations and save time
- Assist any existing data back-up and archiving policies/procedures

This tech note suggests a simple data collection management system with the intent of achieving these goals.

Binary File Format

When data is downloaded from an Optimum datalogger to a PC, it is stored by default in a compressed binary file (*.bin) format in the Data Dolphin software's Dolphin/Cache subdirectory (C:\Program Files\Optimum\Dolphin\Cache). This file contains all of the recorded data as well as the current status and settings of the datalogger. It is from this file that the site database is created. Because of its small size, this file can be more easily transported than the larger site database, making it the file of choice for downloading and transferring from a laptop to a larger, faster desktop computer. This file format is also useful for backing up the site data, to later recreate the site database file should it ever become corrupted or accidentally erased.

Binary cache files are named with the Dolphin's unit number and the date and time of the download. For example, a file retrieved from a site with a Dolphin unit number of 30 on July 5, 2002 at 2:32:55 PM would be named as "30 - Jul 05 2002 @ 14-32-55.bin".

Centralization

A necessary component of data collection management is a centralized location for all the data collected from the sites. Choose a fast desktop computer with a large amount of free storage space (greater than 200MB) for this purpose. This data analysis computer should have the latest version of the Data Dolphin software installed, and should be situated on a local area network to facilitate the transfer of files from the various field laptops.

Preparation

Once you have chosen a single computer as the data analysis computer, perform some initial preparations for convenience. Create a folder named “Archive” or designate a location in which to archive all the BIN files after they have been imported. If desired, create a separate folder within this location for each of the sites in your project. This will help to both organize the BIN files, as well as simplify site database restoration. Using Windows Explorer, open the Data Dolphin software’s Cache directory (C:\Program Files\Optimum\Dolphin\Cache, by default) and **move** any of the existing BIN files to the archive location. This will help to make the import of the field computer’s BIN files clearer in the following procedure.

Data Collection and Bin Importing Procedure

The following suggested procedure is for managing data collection on a project in which multiple field computers are used to gather the data. Use the following procedure for *each* field computer in use:

1. Establish a LAN connection or file transfer connection from the field computer to the data analysis computer.
2. Open the Dolphin/Cache directory (located in C:\Program Files\Optimum\Dolphin\Cache) on both the field and data analysis computer. Copy all the BIN files from the field computer to the Cache directory on the data analysis computer.
3. On the data analysis computer, load the Data Dolphin software into windows. Select “Import BIN Files” from the “File” drop down menu (Figure 1).

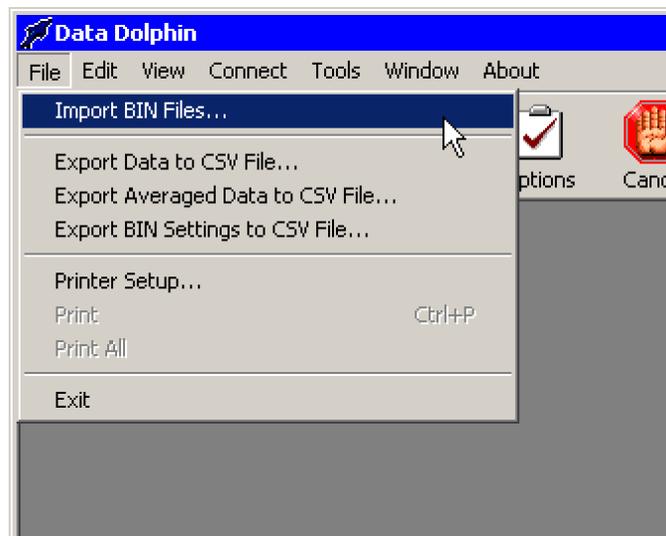


Figure 1: Importing a cache file

4. Next select the binary files to import from the file selection dialog box. Hold down the shift key to select a series of binary files, or hold down the control key to individually select a series of files. If you have prepared the data analysis computer beforehand (see Preparation), all of the BIN files appearing here will be from the field computer and will have to be selected for importing.

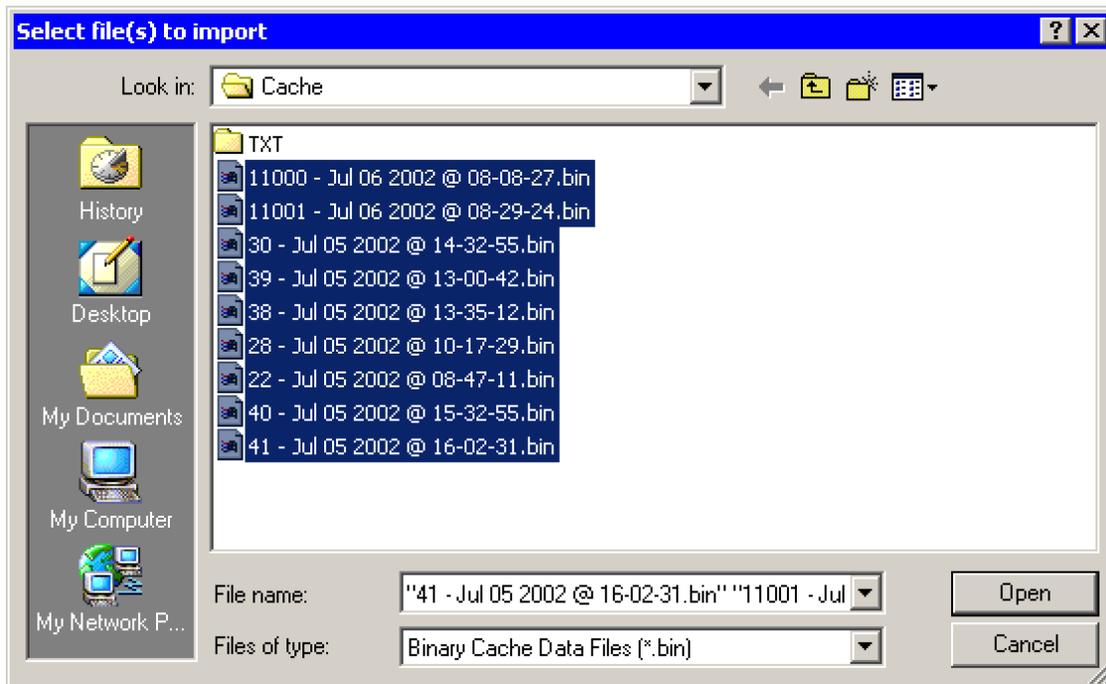


Figure 2: Selecting the cache files

5. Click the “Open” button. A site database for each site selected will be created if one does not already exist in the Data Dolphin Sites directory (C:\Program Files\Optimum\Dolphin\Sites). If one does, the data in the site’s BIN files selected will be appended to it. A site database is in a Microsoft Access file format (*.mdb), with a filename that contains the Data Dolphin's unit number. Should you happen to import data that already exists in the site database, it will be ignored.
6. Finally, to prepare for the next field computer download, **move** all of the BIN files in the Cache directory of your data analysis computer to the archive directory (see Preparation). Delete all the BIN files in the Cache directory of field computer.

Database Maintenance

Through regular use of the Data Dolphin software, the site databases will tend to become overly large, especially if you repeatedly import data from the same BIN files. A database compaction utility exists in the Data Dolphin software to solve this problem. Open the Data Dolphin software, and select “Compact Database” from the “Tools” drop down menu. In the file dialog box that opens, select the site database files that require compaction. Hold down the shift key to select a series of site database files, or hold down the control key to individually select site database files. You can also use “Ctrl-A” to select all the files. Once complete, click the “Open” button to run the database compaction utility. For optimum performance, perform this database compaction on a monthly basis.