

ODBC Replication

ODBC Replication copies data from local remote sites to a host server, usually for reporting purposes. Local data in this application is replicated (copied) to the host server via ODBC. Replication can run:

- in the background as you make changes.
- from batch commands started from the menu.
- scheduled from the Windows Task Scheduler or an equivalent scheduler.

Getting Started

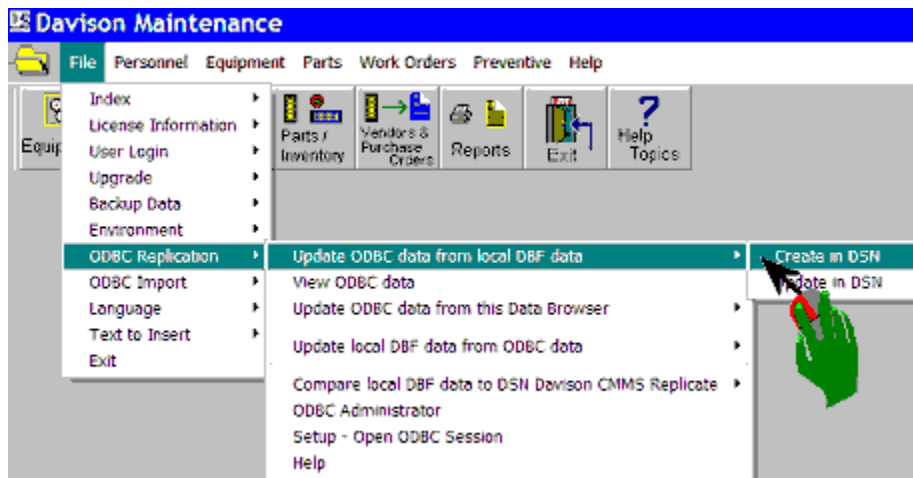
Alternate procedures are possible. We suggest the following:

1) *At every site* create a new DSN (Data Source Name) named "Davison CMMS Replicate" in ODBC Administrator for your DBMS (MS Access, Microsoft SQL Server, SyBase, MySQL, Oracle). This DSN is for one database that is first created by this application then updated from remote sites.

Every remote site will replicate to the same host database. Remote sites will usually not need the right to create or drop tables. Remote sites will issue simple SELECT, DELETE, INSERT commands.

2) *For the first site*, run "Create in DSN" as shown. **Do this only one time for the first site.**

This will create the tables in the host database DSN. Enter a site name if prompted. **Each site must have a unique site name.**



Select "Erase" to create new tables.



3) *At every site* schedule ReplFresh.exe from the Windows Task Scheduler or an equivalent scheduler: Run ReplFresh.exe from C:\DMSsystem\ or the folder where you installed this program.



This is the same as the menu command: File, ODBC Replication, Update ODBC..., **Update** in DSN.

If the ODBC connection fails for a long period, you can "Backup" from the remote site and send the data backup (ZIP file) to the host location via email or disk. The data could be restored to a data folder at the host location and updated to the host database.

Alternate Procedures (A or B):

A) For background replication with every change:

- 1) Create a database DSN (Data Source Name) named "Davison CMMS Replicate". If this DSN does not exist, you are prompted to create it in step 2). You can create this DSN in advance from "ODBC Administrator".
- 2) Select "File", "ODBC Replication", "Update ODBC data ...", "Create in DSN ...", "Yes" to "Create new ODBC data from local DBF data".
- 3) Select "Setup - Open ODBC Session" and Check both options:
"Open ODBC Session to replicate ..."
"Open ODBC Session at startup"
As an option check only "Refresh when Quit Application" to refresh as the user closes the application.

When an ODBC session is open this ODBC icon is displayed at the File menu . Otherwise this file icon is displayed .

Occasionally you may need to run "Update ODBC data ..." if the ODBC connection was closed for a time.

B) For batch processing to replicate data to the ODBC data source:

Select "File", "ODBC Replication", "Update ODBC data ...", "Create in DSN ...", "Yes" to "Create new ODBC data from local DBF data".

After making changes you can select "Update in DSN ..." for a faster update.

You must create a DSN (Data Source Name) named "Davison CMMS Replicate". The following SQL data sources are supported for replication from Davison Software applications:

MS Access, Microsoft SQL Server, SyBase, MySQL, Oracle

Some benefits of replication:

- Low traffic between the host server and remote client users.
- Installation of this application at the local site is simple and small size.
- Intermittent connection is acceptable. You can continue to make changes to the local data in this application and update the host server after connection is achieved.
- Database administration of the server is minimized. All busy operations occur at the local machine. The user (or administrator) can re-create the server schema from the local application. The local application is the primary source (source of truth) for data, but the replicated server contains a copy that can re-create the local data. See ** Administrative note below.
- Deleted records in the local data can be un-deleted (recalled), provided the DBF data has not been packed.
- Good performance with low cost.

This application with DBF data can run multi-user on a local Novel, Linux, or Windows server as replication occurs in the background to the host ODBC data source.

About selections on the ODBC Replication menu

- Update ODBC data from local data

Create in DSN

Create a new database schema on the ODBC server. This command creates all tables on the server, equivalent to the DBF tables in this application. In addition two columns are added to each server table. These additional columns(SRVKEYCLMN, SRVLASTUPD) are indexed for performance in replication. No other users can have this application or the server open during this process. You must be granted full rights on the ODBC server for creating a database.

Create in DSN – Replace this Site, Delete this Site

Replace this Site: Deletes all rows for the site, then updates all rows from the local tables.

Delete this Site: Deletes all rows for the site.

NOTE: *If* users have changed key codes *and* the setup option “Open ODBC Session...” is not active, the host database will include rows of the old key codes. This and any other problems in synchronization between local and host data can be eliminated by running “Replace this Site”.

Update in DSN

Update only the most recent changes in local data to the ODBC server. This is provided for a quick update. It can be configured to repeat whenever a user closes the application. Other users can have this application and the server open.

- **Compare local data to DSN**

This compares all data fields of every record between local and ODBC data for a perfect evaluation. This is slower, but compares exactly and can run while users have opened both local data and ODBC data.

Update while comparing

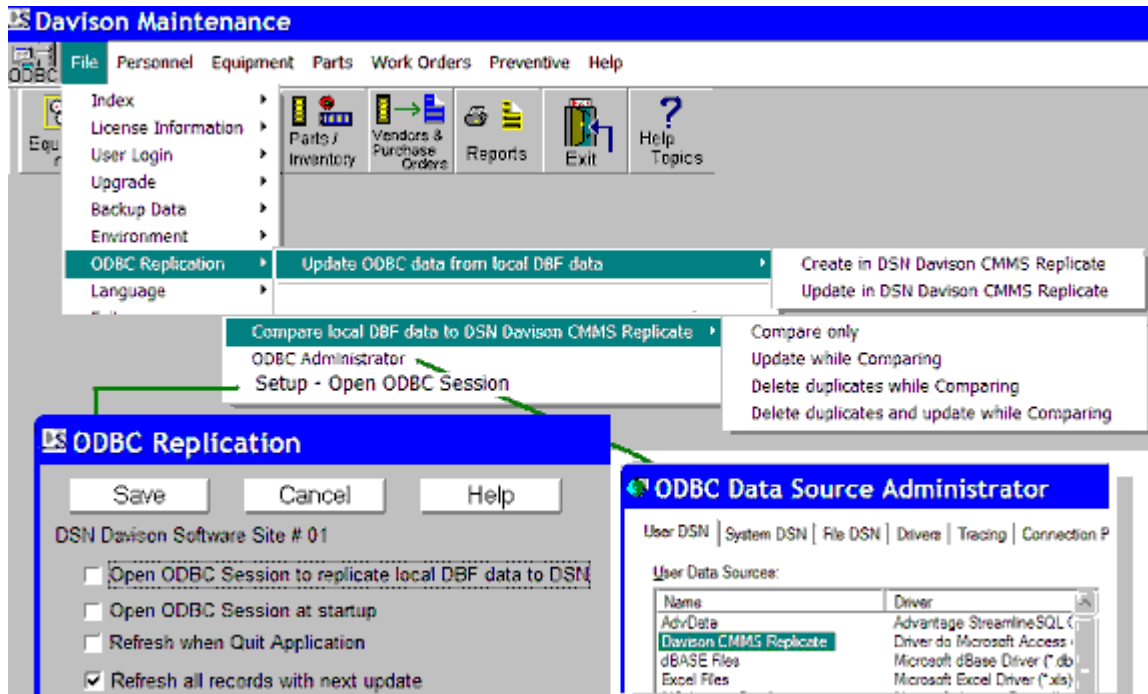
This updates local data to the ODBC data source, based on a field-by-field comparison. This ensures a perfect replication.

Delete duplicates while comparing

This deletes any duplicate records in the local data. This should not be needed with normal data entry.

Adding Fields

Add your fields by adding a table with one-to-one relation to any table in the host database. From your new table you can make related reports. Our upgrades, or even creating the ODBC Replicate again, will have no affect on your table.



** Administrative note

The ODBC data source can be used to re-create local DBF data. A menu option for this, "Replace from ODBC data", is available if "ODBCExtraItems=Yes" is added in Environment, Configuration. Otherwise this menu selection should *not* remain available for users.

Add "ODBCServerDSN=<MyDSN>" for a different DSN.

Details

All single quotes in DBF data are converted to (`) (' to `). If SQL data is returned to DBF (`) is converted back to (').

Time from DBF is stored as hhmm. We display this to the user as hh:mm am/PM in this application. Date-time fields use only the date. Logical fields in DBF are converted to BIT, except NUMERIC(1,0) in Oracle.

SQL commands used by this program are simple SELECT, DELETE, INSERT statements using the indexes created as follows. The column SRVKEYCLMN is the DBF index value for unique records in DBF. The column SRVLASTUPD is the last update from DBF as date and time in the format <CCYYMMDDhh:mm:ss>.

For each local DBF table these columns are added to the host SQL table and indexed as follows:
 CREATE INDEX SITENUMKEY ON <cTableName > (SITENUMB, SRVKEYCLMN)
 CREATE INDEX SRVLASTUPD ON <cTableName> (SRVLASTUPD)

This application can replicate to a host data source that is a combination of many local sites. As the local data replicates to the ODBC data source a site number is used to identify the host data from other sites.

Each site must have a unique site name. The site (company) name is assigned with the installation. Each site is automatically assigned a site number in the host source table SITELIST. In the host data source the field SITENUMB contains this site number with zeros filled left to a length of five. For example site number 1 will assign the value "00001" to SITENUMB.