Industry-specific

QAD SOLUTIONS

Manufacturing Applications

External Interface Guide

Data Synchronization

UNIX Installation
Windows Installation
Data Synchronization Overview
Setting Up Data Synchronization
Synchronizing Data
Entity Diagrams
Database Definitions

QAD

78-0536E
MFG/PRO 9.0, eB, eB2
January 2003

78-0536E

QAD Inc.
6450 Via Real
Carpinteria, California 93013
Phone (805) 684-6614
Fax (805) 684-1890
http://www.qad.com

Contents

About This Guide

This guide covers the installation, setup, features, and use of Data Synchronization (DataSync). Use DataSync to synchronize master table data among multiple, distributed MFG/PRO databases.

- See “UNIX Installation” on page 15 for installation instructions for UNIX environments.
- See “Windows Installation” on page 33 for installation instructions for Windows environments.
- See “Data Synchronization Overview” on page 57 for an introduction to the DataSync architecture, menus, and functioning.
- See “Setting Up Data Synchronization” on page 65 for DataSync implementation.
- See “Synchronizing Data” on page 91 for details on document exchange tasks such as publishing, sending, receiving, processing, tracking, correcting, and deleting. This chapter also covers session management.
- See “Entity Diagrams” on page 101 for graphical representations of database table relationships.
- See “Database Definitions” on page 105 for details on the DataSync database tables.

Other MFG/PRO Documentation

- For MFG/PRO installation instructions, refer to the appropriate installation guide for your system.
- For instructions on navigating the Windows and character environments:
  - For MFG/PRO 9.0, refer to the *User Interface Guide*.
  - For MFG/PRO eB and eB2, see *User Guide Volume 1: Introduction.*
- For instructions on navigating the Network User Interface (NetUI) and Desktop environments:
  - For MFG/PRO 9.0, refer to *Network User Interface Guide* or *User Guide: eB Desktop*.
  - For MFG/PRO eB, see *User Guide: eB Desktop and Network User Interface* or *User Guide: QAD Desktop.*

  - For MFG/PRO eB2, see *User Guide: QAD Desktop*.
- For information on using MFG/PRO, refer to the *User Guides*. CIM Interface information changes by MFG/PRO version:
  - For MFG/PRO 9.0, see *User Guide Volume 11: Manager Functions*.
  - For MFG/PRO eB and MFG/PRO eB2, see *User Guide Volume 9: Manager Functions*.
- To view documents online in PDF format, see *Documents on CD* and *Supplemental Documents on CD*.

Note MFG/PRO installation guides are not included on a CD. Printed copies are packaged with your software. Electronic copies of the latest versions are available on the QAD Web site.

Online Help

MFG/PRO has an extensive online help system. Help is available for most fields found on a screen. Procedure help is available for most programs that update the database. Most inquiries, reports, and browses do not have procedure help.

For information on using the help system for the different MFG/PRO interfaces, refer to the appropriate chapters of the books referenced in the previous section.

QAD Web Site

QAD's Web site provides a wide variety of information about the company and its products. You can access the Web site at:

http://www.qad.com

For MFG/PRO users with a QAD Web account, product documentation is available for viewing or downloading at:

http://support.qad.com/documentation/

You can register for a QAD Web account by accessing the Web site and clicking the Accounts link at the top of the screen. Your customer ID number is required. Access to certain areas is dependent on the type of agreement you have with QAD.

Most user documentation is available in two formats:

- Portable document format (PDF). PDF files can be downloaded from the QAD Web site to your computer. You can view them with the free Adobe Acrobat Reader. A link for downloading this program is also available on the QAD Web site.
- HTML. You can view user documentation through your Web browser. The documents include search tools for easily locating topics of interest.

Features also include an online solution database to help MFG/PRO users answer questions about setting up and using the product. Additionally, the QAD Web site has information about training classes and other services that can help you learn about MFG/PRO.

Conventions

Menu and Book References

This guide applies to multiple versions of MFG/PRO. A number of menus have changed between these versions. For example, the Q/LinQ menu in version 9.0 is different from the menu in eB and eB2. Differences in menu numbers are noted, when necessary, using this format:

Register External Application (36.8.1.1; 36.8.1 in 9.0)

The initial menu number identifies the program in the most recent release. The second menu number applies to the release specified and any earlier releases.

In addition, some book titles have changed. References to these books use the title from the most recent release.

Interface

The software is available in several interfaces, depending on the release level of MFG/PRO: Desktop or NetUI (Web browser), Windows, and character. To standardize presentation, the documentation uses the following conventions:

- MFG/PRO screen captures show the Windows interface.
- References to keyboard commands are generic. For example, choose Go refers to:
  - The forward arrow in Desktop
  - F2 in the Windows interface
  - F1 in the character interface

  In the character and Windows interfaces, the Progress status line at the bottom of a program window lists the main UI-specific keyboard commands used in that program. In Desktop, alternate commands are listed in the right-click context menu.

  For complete keyboard command summaries for each MFG/PRO interface, refer to the appropriate chapters of the books listed in “Other MFG/PRO Documentation” on page 2.

Typographic

This document uses the text or typographic conventions listed in the following table.

If you see:	It means:
`monospaced text`	A command or file name.
`italicized monospaced text`	A variable name for a value you enter as part of an operating system command; for example, *`YourCDROMDir`*.
`indented command line`	A long command that you enter as one line, although it appears in the text as two lines.
Note	Alerts the reader to exceptions or special conditions.
Important	Alerts the reader to critical information.
Warning	Used in situations where you can overwrite or corrupt data, unless you follow the instructions.

Section 1

UNIX and Windows Installations

This section includes an installation overview and instructions for bolt-on installations of Data Synchronization on UNIX and Windows systems.

Chapter 1

Installation Overview

This chapter covers preparatory information for installing Data Synchronization (DataSync).

Audience

These instructions are for MFG/PRO system administrators who manage the MFG/PRO database and are familiar with the UNIX environment, Windows environment, networking, and Progress.

Installation Errata

In addition to these instructions, you may receive a supplementary errata sheet with changes and additional instructions. Check your product package.

Even if an errata sheet is included with your product package, QAD recommends that you download the most up-to-date errata sheet from the QAD Web site. New information may have been added to the errata sheet since your product was shipped.

To ensure a smooth implementation, QAD installation instructions are periodically updated. To determine whether your installation instructions have been updated, refer to the QAD Web site. Compare the item number listed on your guide with the number listed on the QAD Web site. If your guide has been updated, download and use the most recent version.

DataSync CD-ROM

The DataSync CD-ROM contains Progress programs that are specific to DataSync as well as database files. No C or Java code is included.

On Progress platforms, the database tables for storing DataSync data are maintained in a separate database, created as part of the installation.

Minimum Requirements

Table 1.1 lists the database server requirements specific to DataSync. For MFG/PRO minimum requirements, refer to the appropriate installation guide for your system.

Table 1.1 Database Server Requirements

Requirement	Description
Progress	The Progress version required by MFG/PRO is sufficient.
MFG/PRO	Version 9.0 with Service Pack 5 or higher, installed and configured. MFG/PRO eB with Service Pack 3 or higher, installed and configured. MFG/PRO eB2 with Service Pack 1 or higher, installed and configured.
Q/LinQ	For MFG/PRO 9.0, Q/LinQ with Service Pack 5 or higher, installed and configured. For MFG/PRO eB, Q/LinQ with Service Pack 3 or higher, installed and configured. For MFG/PRO eB2, Q/LinQ with Service Pack 1 or higher, installed and configured.
Disk Space	The installation program verifies that at least 15 MB of space exists on the selected file system.

Note As of MFG/PRO eB2, support for the Windows graphical user interface (GUI) with DataSync is no longer available.

Installation Utility

Some of the installation tasks use MFG/UTIL, a utility designed specifically for installing and managing MFG/PRO.

MFG/UTIL was changed between MFG/PRO 9.0 and MFG/PRO eB. In some cases, these changes affect menu items. When needed, instructions for MFG/UTIL in both versions of MFG/PRO are provided.

Note The menu for MFG/UTIL is the same in MFG/PRO eB and eB2.

When using MFG/UTIL in a character user interface, use the keyboard commands listed in Table 1.2.

Table 1.2 MFG/UTIL Keyboard Commands

Navigation Commands	Keyboard Entry	Control Key Entry	Description
Go	F1	Ctrl+X	Moves to next frame.
End	F4	Ctrl+E	Exits a frame, program, or menu.

Navigation Commands	Keyboard Entry	Control Key Entry	Description
Previous	F9 or Up Arrow	Ctrl+K	Retrieves previous record in a key data field and scrolls up in look-up browses.
Next	F10 or Down Arrow	Ctrl+J	Retrieves next record in a key data field and scrolls down in look-up browses.
Select	Space		Selects check boxes and on/off options.
Enter	Enter		Moves to next field within a frame.
Tab	Tab		Moves to next field within a frame.
Back Tab	Shift+Tab	Ctrl+U	Moves back one field within a frame.
Exit		Ctrl+C	Ends process.

Note In the character interface, button commands appear within angle brackets; for example: `< OK >`. To execute a button command, use the Tab key to move to the button and press Enter.

Log Files

For UNIX systems, the installation creates the log files listed in Table 1.3.

Table 1.3 Installation Log Files

Utility	Log File Name	Directory Location
Installation Script	`dsy.log`	Subdirectory `/log` under the installation directory
MFG/UTIL	`mfgutil.log`	MFG/PRO installation directory

Each time MFG/UTIL runs a significant, resource-intensive task such as compiling or loading a database schema file (`.df`, it creates a new log file. The most recent log file is always called `mfgutil.log`. Older log files are named with the convention `mfgutil.xxx`, where `xxx` is a number from 001 through 999. The lower the number, the older the file. For example, these files are listed in order from newest to oldest:

```
mfgutil.log
mfgutil.002
mfgutil.001
```

For Windows systems, the installation creates `dsdbr.log` in the database server installation directory and `dsfs.log` in the file server installation directory.

Chapter 2

UNIX Installation

This chapter includes instructions for installing Data Synchronization (DataSync) on UNIX database servers.

Installation Overview

The following are key steps required for installing DataSync in a UNIX environment:

- Run the DataSync UNIX installation.
- Create the Oracle database, if needed.
- Set up services.
- Modify the startup and shutdown scripts.
- Install the schema triggers.
- Load the data into the database.
- Load the help files.
- Compile the DataSync code.

See page 20.
See page 21.
See page 21.
See page 26.
See page 27.
See page 29.
See page 30.

To complete the installation and setup, see Chapter 5, “Setting Up Data Synchronization,” on page 65.

Mounting the CD-ROM

Install DataSync on the MFG/PRO database server machine. Follow these steps to mount the DataSync installation CD-ROM:

1. Log on as the `root` user ID.
2. Create a CD-ROM directory if it does not already exist. These instructions refer to this directory as *`YourCDROMDir`*.
3. Place the DataSync installation CD-ROM in the CD-ROM drive.
4. Mount the CD-ROM. The mount command differs from system to system. Table 2.1 lists example commands for mounting the DataSync CD-ROM.

Table 2.1 UNIX CD Drive Mount Commands

Hardware	Mount Command
Sun	`volcheck cdrom`
HP	`mount -F cdfs /dev/dsk/`*`YourCDDevice`*` /cdrom`

Hardware	Mount Command
Digital	`mount -r -o noversion -t cdfs /dev/YourCDDevice /cdrom`
AIX	`smitty mountfs` Then select file system, directory, and file system type (`cdrfs`).
Linux	`mount /dev/hdb /mnt/cdrom` Where `/hdb` could be `hdc` or `hdd` among other possibilities.
All others	Refer to your operating system documentation or vendor for requirements to mount a CD-ROM. You may be able to type `man mount` to determine the correct command.

Running the Installation

These steps install DataSync on your server using the DataSync installation script and MFG/UTIL.

Preliminary Setup

1 Log on as user `mfg` under the group `qad`.

Note You should have already created this user when you installed MFG/PRO.

2 Determine and make note of the following:

a Directory location of Progress for the server.

_____

b Location and physical name of the MFG/PRO production database and the MFG/PRO installation directory.

_____

3 From a UNIX prompt, change to the `/unix` directory on the drive containing the DataSync CD-ROM:

```
cd YourCDROMDir/unix
```

Start Installation

1. Execute the script `install`:

   ```
   ./install.ksh
   ```

2. At the following prompt, enter the path to the Progress installation directory; accept the default if it is correct:

   ```
   Enter Progress installation directory
   ```

3. Tab to Next, press Enter.

4. Use the standard terminal types while installing DataSync; for example, for type VT-100, set the TERM variable to vt100 during the installation.

   ```
   Enter Your terminal type, [default = CurrentSetting]:
   ```

5. Install DataSync into any directory you choose, but do not install it directly into the MFG/PRO installation directory.

   At the following prompt, enter the installation directory for DataSync:

   ```
   Enter the full path of the directory where you want to
   install Data Synchronization.
   ```

   The DataSync programs are loaded into this directory. This directory is referred to as *`DataSyncInstallDir`*.

   Note Ensure that the user `mfg` has permission to use the DataSync installation directory.

6. Tab to Next, press Enter.

7. At the following prompt, accept the default DataSync physical database name, `dsy`, or enter a different name:

   ```
   Enter the Data Synchronization physical database name.
   ```

8. Tab to Next, press Enter.

9. Choose the appropriate MFG/PRO version for your environment: 9.0, eB, or eB2. Tab to Next, press Enter.

10. At the following prompt, select the Oracle or Progress database.

    ```
    Select the database type for Data Synchronization.
    ```

11. Tab to Finish, press Enter.

Complete Installation

1. Wait while the DataSync installation determines disk space availability. If there is not enough space, the installation stops. Obtain adequate disk space and restart the installation.

2. For Progress installations, at the following prompt, enter Yes to create the DataSync database. Enter No only if you have already created the database and it contains data:

   ```
   Do you wish to create the Data Synchronization database?
   ```

   The database is created in:

   DataSyncInstallDir`/<`*language code*`>/dsy`

   Note If you have previously installed the DataSync files and you enter Yes, the system waits for you to confirm the overwriting of each file. To exit this time-consuming process, press Ctrl+C.

3. At the following prompt, enter Yes to delete the temporary files created during the DataSync installation:

   ```
   Do you want to clean up the /tmp stage directory?
   ```

4. This completes the process of loading the DataSync files onto the server. Use a text editor to view the installation log:

   DataSyncInstallDir`/log/dsy.log`

5. Log on as the `root` user ID.

6. Unmount the CD-ROM:

   `umount` */YourCDROMDir*

7. Remove the CD-ROM from your CD drive and return it to the case for safekeeping.

8. For Oracle database installations, continue with the next section. For Progress database installations, go to “Setting Up Services” on page 21.

Creating the Oracle Database

If you are using an Oracle database, follow the instructions in this section to create tablespaces and database objects required to run DataSync using the existing MFG/PRO Oracle instance.

Tip
Refer to the appropriate MFG/PRO installation guide for Oracle platforms for more information.

1. Make a copy of the existing MFG/PRO Oracle schema holder.
2. Start the Progress data dictionary against the new copy of the schema holder.
3. Load the file `odsyempty.df` located in the *`DataSyncInstallDir`* into the copy of the schema holder.
4. Truncate the new schema holder `.bi` file.
5. Log on as a member of the Oracle database administration group, which usually does not include `root`.

   Note Only this task requires an Oracle database administrator logon.
6. Verify that the ORACLE_HOME, DLC, and ORACLE_SID environment variables point to the correct locations.
7. Verify that ORACLE_HOME and ORACLE_HOME/bin are in the UNIX path.
8. Copy the following files from the *`DataSyncInstallDir`* to your primary MFG/PRO on Oracle instance directory.

   ```
   odsyempty-idx.sql
   odsyempty-seq.sql
   odsyempty-tbl.sql
   ```
9. Load `odsyempty-tbl.sql` into the new Oracle tablespaces:

   ```
   sqlplus qad/qad < odsyempty-tbl.sql
   ```
10. Examine the log file for the SQL script to check for unexpected errors. The log file name is the same as the SQL script name, but with a `.lst` or `.log` extension.

    Note If there is an error, you can safely rerun the SQL script. `odsyempty-tbl.sql` must load successfully before you attempt to load `odsyempty-idx.sql`.

11 Load `odsyempty-idx.sql` into the new Oracle tablespaces. Only one attempt to load this file is allowed:

```
sqlplus qad/qad < odsyempty-idx.sql
```

12 Load `odsyempty-seq.sql` into the new Oracle tablespaces:

```
sqlplus qad/qad < odsyempty-seq.sql
```

13 Log off and log on again as user `mfg` under the group `qad`.

Setting Up Services

Because MFG/PRO clients need to connect to the DataSync database, you must edit the `services` file to include network services for the DataSync database server.

Locate your `services` file (usually in the `/etc` or `/etc/inet` directory) and add the service `dsy-server`. Any available port number is acceptable. See the following example:

```
dsy-server  4210/tcp  # DataSync production database server
```

Any available port — Network type

Modifying the MFG/PRO Startup

A database set controls the connection parameters for creating character client and server startup scripts for MFG/PRO sessions. Complete these steps to add the DataSync database to the required MFG/PRO database sets and modify MFG/PRO scripts.

Note This section assumes you have already completely installed MFG/PRO.

At a minimum, you must update the production and compile database sets to implement DataSync. If you want to implement DataSync in `mfgtrain` or `mfgdemo` for training or custom development environments, update these database sets as well. Repeat the following instructions for each affected database set.

Update DataSync Database Sets

The instructions for updating database sets for Progress and Oracle are covered in separate sections.

Update MFG/PRO Progress Database Sets

Follow these steps to create the client and server views for the DataSync database for each required database set.

1. Change to the MFG/PRO installation directory.
2. Start MFG/UTIL:

   ```
   ./mfgutil
   ```

3. From the MFG/UTIL Configure menu, choose Any Database Set in MFG/PRO 9.0; in MFG/PRO eB and eB2, choose Database Set Maintenance.
4. When the Database Set Configuration window appears, select the database set you want to update.
5. Configure the client view of the DataSync database:
   a. With the database set selected, click New Client to display the Client View of Database Parameters window. As you complete this window, refer to the following table:

Physical:	Enter the physical name of the DataSync database; accept the default if there is one.
Logical:	`qadmfs`
Description:	DataSync database
Connect Parms:	`-trig triggers`
Connection Type:	Enter local or client-server, depending on setup.
Path:	Enter the DataSync database directory, specified in step 2 on page 19.

   b. Click OK in the Client View of Database Parameters window.

6 Configure the server view of the DataSync database.

a With the database set selected, click Edit Server to display the Server View of Database Parameters window. As you complete this window, refer to the following table:

Physical:	Enter or accept the database name to include in this set.
Description:	DataSync database
Server/Connect Parms:	`-cpstream ibm850 -cpinternal iso8859-1 -cpcoll basic -L 8000 -c 250 -B 1000`
Service:	Service name, recommended `dsy-server`. See “Setting Up Services” on page 21.
Path:	Enter the DataSync database directory.

b Click OK in the Server View of Database Parameters window.

Update MFG/PRO Oracle Database Set

These steps create the client and server views for the DataSync database for each database set.

1 Change to the MFG/PRO installation directory.

2 Start MFG/UTIL:

```
./mfgutil
```

3 From the MFG/UTIL Configure menu, choose Any Database Set in MFG/PRO 9.0; in MFG/PRO eB and eB2, choose Database Set Maintenance.

4 When the Database Set Configuration window appears, select the database set to be updated.

5 Configure the client view of the DataSync schema holder:

a With the database set selected, click New Client to display the Client View of Database Parameters window. As you complete this window, refer to the following table:

Physical:	Enter the physical name of new DataSync schema holder.
Logical:	`qad`
Description:	MFG/PRO and DataSync database
Connect Parms:	`-RO -znotrim -trig triggers`

Connection Type:	Enter local or client-server, depending on setup.
Path:	Enter the DataSync schema holder directory.

b Click OK in the Client View of Database Parameters window.

6 Configure the server view of the database:

a With the database set selected, click Edit Server to display the Server View of Database Parameters window. As you complete this window, refer to the following table:

Physical:	Enter the physical name of the new MFG/PRO schema holder. See steps 1 through 4 on page 20.
Description:	MFG/PRO and DataSync database
Server/Connect Parms:	`-dt ORACLE -U qad@qora -P qad` (`U`(=user ID), `P`(=password))
Service:	Service name, recommended `dsy-server`. See “Setting Up Services” on page 21.
Path:	Enter the DataSync schema holder directory.

b Click OK in the Server View of Database Parameters window.

Complete Parameter Modifications

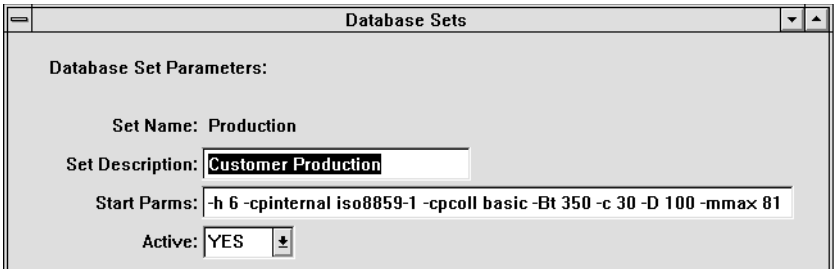
Complete the following steps for both Progress and Oracle databases:

1 From the MFG/UTIL Configure menu, choose Any Database Set in MFG/PRO 9.0; in MFG/PRO eB and eB2, choose Database Set Maintenance.

2 With the database set selected, click Edit Set to display the Database Sets window.

3 When the Database Sets window displays, count the number of databases displayed in the bottom frame and record for use in step 4.

4 By default, the maximum number of concurrently connected Progress databases is 5. If the total number of databases is five or more, add `-h` *`number of databases`* (from step 3) at the beginning of the Start Parms field.



5 Click OK.

Set the PROPATH

1 From the MFG/UTIL Configure menu, choose DLC and PROPATH Variables in MFG/PRO 9.0; in MFG/PRO eB and eB2, choose Set Paths for MFG/PRO and MFG/UTIL.

2 In the PROPATH field, add the directory location of the DataSync installation directory and directory location of the DataSync programs.

The example shows the PROPATH for a DataSync initialization file and DataSync programs.

```
DataSyncInstallDir,/DataSyncInstallDir/us/qq,
/DataSyncInstallDir/us/bbi,existingPROPATH
```

Modify the Startup and Shutdown Scripts

Add the DataSync database to existing startup scripts so that it launches the next time MFG/PRO starts.

1 From the MFG/UTIL Scripts menu, choose Generate Server Startup and Shutdown in MFG/PRO 9.0; in MFG/PRO eB and eB2, choose Generate Scripts.

2 From Create Unix Server Scripts, select Production.

3 Click OK.

4 Click Yes in response to the Create New Scripts? prompt. This launches the DataSync Production database server the next time MFG/PRO starts.

5 From the MFG/UTIL Scripts menu, choose Generate User Startup.

6 From Create Unix Client Scripts, select Production.

7 Click OK.

8 Click Yes in response to the Create New Scripts? prompt. This connects the DataSync Production database the next time MFG/PRO starts.

9 Exit from MFG/UTIL when finished.

Installing Schema Triggers

Install the schema triggers in the MFG/PRO and DataSync databases. These triggers capture the data updates for synchronization between databases.

1 Copy all files from /*DataSyncInstallDir*/`triggers` to /*MFGPROInstallDir*/`triggers`.

2 Start an MFG/PRO session in single-user mode with both the MFG/PRO and DataSync databases connected.

3 Invoke the Progress Editor.

4 Choose Data Dictionary from the Tools menu.

5 Choose Select Working Database from the Database menu.

6 For Progress, select the MFG/PRO database from the list of databases and press Enter. For Oracle, select the MFG/PRO schema holder.

7 Exit the Data Dictionary and return to the Progress Editor to unfreeze the tables in the MFG/PRO database:

```
run /DataSyncInstallDir/us/src/utunfrz.p
```

8 Press Go.

9 Choose Data Dictionary from the Tools menu.

10 Choose Load Data and Definitions from the Admin menu.

11 Choose Data Definitions (.df file).

12 Enter the input file:

```
/DataSyncInstallDir/us/mfg/mfgtrig.df
```

13 Press Go to install the triggers into the MFG/PRO database.

14 In the Progress Editor, refreeze the tables in the MFG/PRO database:

```
run /DataSyncInstallDir/us/src/utfrz.p
```

15 Choose Data Dictionary from the Tools menu.

16 Choose Select Working Database from the Database menu.

17 Select `qadmfs` from the list of databases and press Enter. For Oracle, select the DataSync schema holder.

18 Repeat steps 7 through 11 for the DataSync database, `qadmfs`, or the Oracle schema holder.

19 Enter the input file:

```
/DataSyncInstallDir/us/dsy/dsytrig.df
```

20 Press Go to install the triggers into the DataSync database.

21 In the Progress Editor, refreeze the tables in the DataSync database:

```
run /DataSyncInstallDir/us/src/utfrz.p
```

Loading Data Files

Use the Progress Editor to load several data files into the databases.

1 Start a single-user session of MFG/PRO and invoke the Progress Editor.

2 Choose Data Dictionary from the Tools menu.

3 Choose Select Working Database from the Database menu.

4 Select `qaddb` database from the list of databases and press Enter.

5 Choose Load Data and Definitions|Table Contents (.d file) from the Admin menu.

6 Scroll through the list of tables and select the following entries by pressing Enter:

Table	Description
flh_mstr	Field Help Program Master
mnd_det	Menu Detail
mnt_det	Menu Title Detail
msg_mstr	Message Master

7 Press Go.

8 Specify the directory where the corresponding `.d` files were installed; for example, `/DataSyncInstallDir/us/mfg`. Press Go to load the data.

Note You can leave Acceptable Error Percentage set to zero, since no errors are expected. Loading the data more than once produces warnings as the data is overwritten. To reload the files without seeing warnings, set the error percentage to 100.

9 Repeat the load procedure, this time selecting the following tables from the `qadadmin` database for MFG/PRO eB and eB2 or the `qadgui` database for MFG/PRO 9.0.

Note For Oracle, all data loads are into the same database, `qaddb`.

For MFG/PRO eB and eB2, for example:

`/DataSyncInstallDir/us/admin`

For MFG/PRO 9.0, for example:

`/DataSyncInstallDir/us/gui`

Table	Description	9.0	eB	eB2
brwf_det	Browse Field Detail	✓	✓	✓
brwt_det	Browse Table Detail	✓	✓	✓
brw_mstr	Browse Master	✓	✓	✓
lbld_det	Label Detail		✓	✓
lbl_mstr	Label Master		✓	✓
mnts_det	Menu Substitution Translation Detail	✓	✓	✓
vue_mstr	View/Join Master	✓	✓	✓
vuf_det	View Field Detail	✓	✓	✓
vwj_det	View/Join Criteria Detail	✓	✓	✓

10 Repeat the load procedure again, this time selecting the `qadmfs` database and the following tables in:

`/DataSyncInstallDir/us/dsy`

Table	Description
sytf_mstr	Sync Table – Field Master
syp_mstr	Sync Profile Master
sypd_det	Sync Profile Detail

Note For Oracle, all data loads are into the same database, `qaddb`.

11 When you have finished loading all the data, exit the Progress Editor.

Loading Online Help

DataSync includes character-mode online field and procedure help. Loading the DataSync help adds online help for the DataSync programs and fields to the MFG/PRO help. It does not affect custom help.

1 Start a single-user MFG/PRO session.

2 Open Field Help Load (36.4.19).

3 Leave Field, Procedure, Status, and Text Type blank.

4 Complete the other fields:

Language	Enter an appropriate two-letter language code (such as US for English).
Field Help Load File	Enter the full path to: `/DataSyncInstallDir/us/hlp/fieldhlp.fhd`
Skip loading help with lower status	Enter Yes.

5 Press Go to begin the load.

6 Exit Field Help Load when the load is finished.

7 Update user profiles to access character-format help. In MFG/PRO 9.0 and eB, open User Interface Profile (36.20.4). In MFG/PRO eB2, use User Maintenance (36.3.18).

8 Leave Userid blank; this updates the profile for all users who do not have individual profiles. Press Go.

9 To set the profile for character help, ensure that WinHelp? is unchecked.

10 Press Go to save the changes.

Compiling Code

During installation of DataSync, the `qqmfsin.i` include file is copied to the installation directory. This file indicates to Q/LinQ that DataSync is installed. In order for the DataSync frames and fields to appear in Q/LinQ programs, the Q/LinQ programs must be recompiled with the version of `qqmfsin.i` included on your installation CD.

Use MFG/UTIL to compile the Q/LinQ programs. Make sure that the compile PROPATH includes the location of the `qqmfsin.i` file installed with DataSync:

```
:/DataSyncInstallDir/us/xrc:/QlinqInstallDir/us/xrc
:/MFGPROInstallDir/us/xrc
```

Follow these steps to run the compile procedure:

1 Start MFG/UTIL:

```
./mfgutil
```

2 From the Program menu, choose Compile Procedures.

3 In the Source Directory field, enter the name of the */QlinqInstallDir*. Add the `xrc` directory for the installed language:

```
/QlinqInstallDir/us/xrc
```

4 Select the All files in the source directory radio button.

5 Check the Save new `.r` files option.

6 Enter your two-letter MFG/PRO language abbreviation in the Language field.

7 Use the browse button to locate the Q/LinQ compile list in the */QlinqInstallDir* directory. The compile list file name is `utcompil.wrk`.

8 In the Destination Directory field, enter the name of the */QlinqInstallDir* directory:

```
/QlinqInstallDir
```

9 Enter Compile in the Database Set field.

10 Set the Compile Propath to include the /xrc subdirectories of DataSync, followed by Q/LinQ, and then the standard MFG/PRO compile PROPATH directories, as in the following example:

```
:/DataSyncInstallDir/us/xrc:/QlinqInstallDir/us/xrc
:/MFGPROInstallDir/us/xrc
```

Note The */DataSyncInstallDir/us/xrc* directory must come at the beginning of the PROPATH.

11 Click Compile. The compile runs through approximately 80 programs and should take just a few minutes.

12 When the compile is complete, click Close to close the log window.

13 Exit MFG/UTIL.

Chapter 3

Windows Installation

This chapter includes instructions for installing Data Synchronization (DataSync) on Windows database servers.

Installation Overview

You can install DataSync on Windows NT, 2000, or XP. Only Progress databases are supported.

For MFG/PRO 9.0 and eB, you can install both graphical and character clients on Windows systems. In MFG/PRO eB2, you can install the character client only.

The following are key steps required for installing DataSync in a Windows environment:

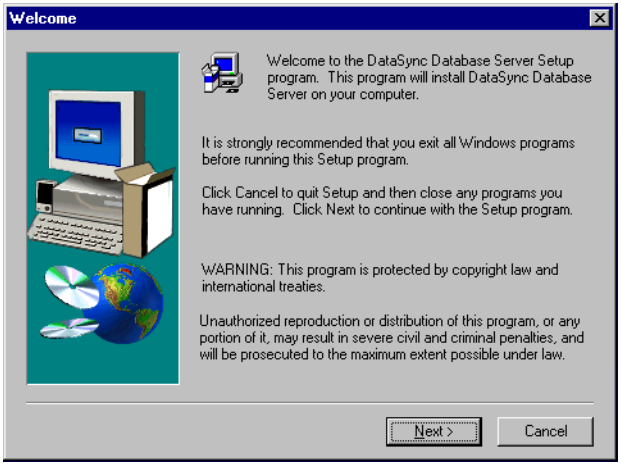
- Run the DataSync Windows Database Server installation.
- Create the DataSync empty database. See page 37.
- Load the data files. See page 38.
- Load the online help files. See page 40.
- Set up services on the database server. See page 41.
- Modify the database server startup parameters and generate scripts. See page 41.
- Run the DataSync Windows File Server installation. See page 44.
- Modify the client `services` file. See page 47.
- Modify the client startup parameters, the client PROPATH, and generate client scripts. See page 48.
- Install the schema triggers. See page 52.
- Configure remote clients. See page 53.
- Compile code. See page 53.

To complete the installation and setup, see Chapter 5, “Setting Up Data Synchronization,” on page 65.

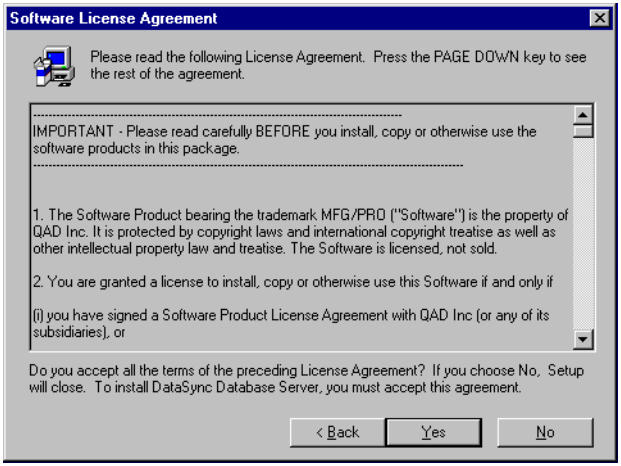
Running the Database Server Installation

1. Insert the DataSync CD-ROM in the CD-ROM drive.
2. Run the `setup.exe` program using File Manager, Windows Explorer, or the Run command in the Windows Start menu.

   `CD-ROMDriveName``:\Database\setup.exe`
3. At the Welcome window, click Next.

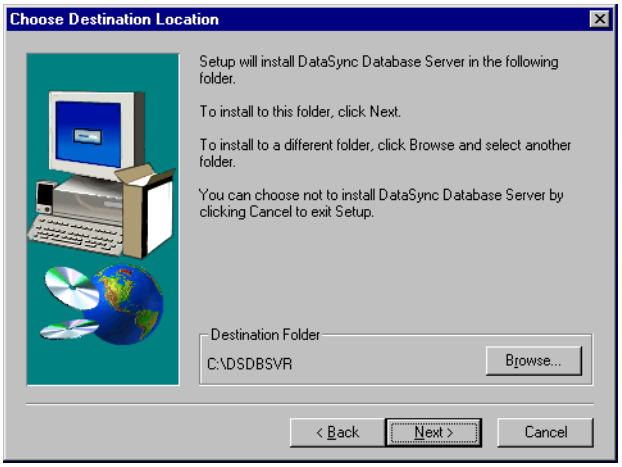


4. At the License Agreement window, click Yes.

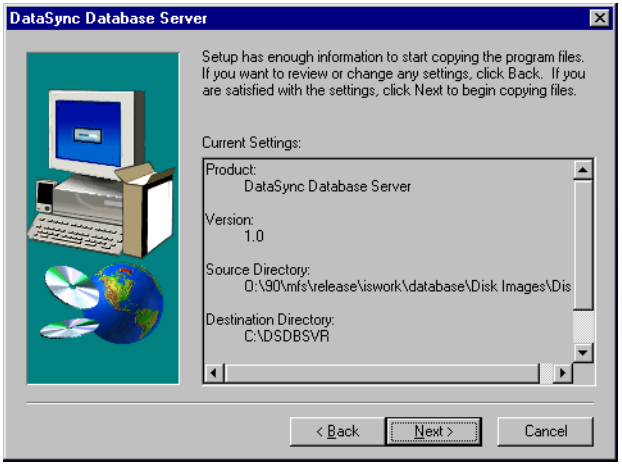


5 At the Components window, select the version to install—9.0, eB, or eB2—and click Next.

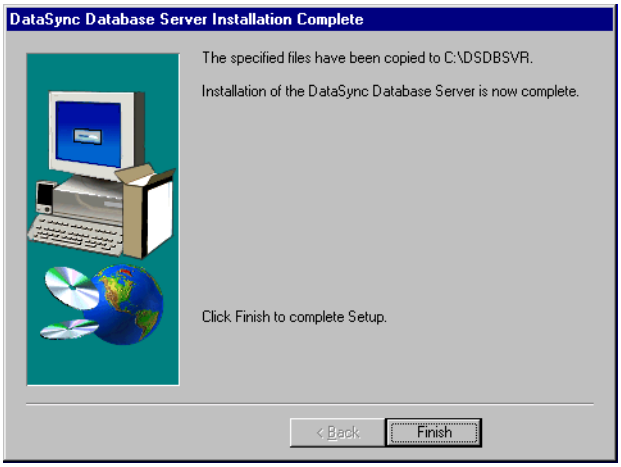
6 Specify the directory in which you want to install the DataSync Database Server. Accept the default or use the Browse button to select an alternate directory. Click Next to continue. This directory is referred to as the *DataSyncInstallDir* in this guide.



7 Verify that the installation information is correct. If any of the information is incorrect, click Back. Otherwise, click Next.



8 When the Installation Complete window displays, click Finish to complete the database server installation.



Creating the DataSync Empty Database

Use the Progress Editor to create the empty DataSync database.

1 Start a session of MFG/PRO and invoke the Progress Editor. You should ensure that no one is using the database since this process updates database tables.

Note These instructions are written for the Progress GUI interface.

2 Choose Data Administration from the Tools menu.

3 Choose Create from the Database menu.

4 Enter the full path to the location for the empty database:

DataSyncInstallDir\us\dsy\dsyempty

5 For Start with, select the An EMPTY Database radio button.

6 Click OK.

7 In the Connect window, enter `dsyempty` for the physical database name and `qadmfs` as the logical database name. Select `qadmfs` as the working database.

8 In the Data Administration window, choose Load Data and Definitions|Data Definitions (.df file) from the Admin menu.

9 Click on the Files button to find `dsyempty.df` in *`DataSyncInstallDir`*`\us\dsy`

10 Click OK to load the tables.

Loading Data Files

In your current MFG/PRO session, continue to use the Progress Editor to load several data files into the databases.

1 Choose Select Working Database from the Database menu.

2 Select `qaddb` from the list of databases and click OK.

3 Choose Load Data and Definitions|Table Contents (.d file) from the Admin menu.

4 Scroll through the list of tables and select the following entries by clicking OK:

Table	Description
flh_mstr	Field Help Program Master
mnd_det	Menu Detail
mnt_det	Menu Title Detail
msg_mstr	Message Master

5 Click OK.

6 Specify the directory where the corresponding `.d` files were installed; for example, *`DataSyncDInstallDir`*`\us\mfg`. Click OK to load the data.

Note You can leave Acceptable Error Percentage set to zero, since no errors are expected. Loading the data more than once produces warnings as the data is overwritten. To reload the files without seeing warnings, set the error percentage to 100.

7 Repeat the load procedure, this time selecting the following tables from the `qadadmin` database for MFG/PRO eB or eB2 or the `qadgui` database for MFG/PRO 9.0.

For MFG/PRO eB and eB2, for example:

DataSyncInstallDir\us\admin

For MFG/PRO 9.0, for example:

DataSyncInstallDir\us\gui

Table	Description	9.0	eB	eB2
brwf_det	Browse Field Detail	✓	✓	✓
brwt_det	Browse Table Detail	✓	✓	✓
brw_mstr	Browse Master	✓	✓	✓
lbld_det	Label Detail		✓	✓
lbl_mstr	Label Master		✓	✓
mnts_det	Menu Substitution Translation Detail	✓	✓	✓
vue_mstr	View/Join Master	✓	✓	✓
vuf_det	View Field Detail	✓	✓	✓
vwj_det	View/Join Criteria Detail	✓	✓	✓

8 Make sure you have disconnected from `dsyempty` before continuing with step 9.

9 Choose Create from the Database menu to create the production `dsy` database from the `dsyempty` database created in step 4 on page 37. Refer to the following table as you complete the Create Database window.

New Physical Database Name:	`dsy`
Start with: A Copy of Some Other Database:	`dsyempty`

10 Choose Connect from the Database menu to connect to the `dsy` database.

11 Click Options. Refer to the following table as you complete the Connect Database window.

Physical Name:	`dsy`
Logical Name:	`qadmfs`

12 Repeat the load procedure again, this time selecting the `qadmfs` database and the following tables in:

DataSyncInstallDir\us\dsy

Table	Description
sytf_mstr	Sync Table – Field Master
syp_mstr	Sync Profile Master
sypd_det	Sync Profile Detail

13 When you have finished loading all the data, exit the Progress Editor.

Loading Online Help

DataSync includes character-mode online field and procedure help. Loading the DataSync help adds online help for the DataSync programs and fields to the MFG/PRO help. It does not affect custom help.

1 Start an MFG/PRO session. Ensure no other users are logged on the system.

2 Open Field Help Load (36.4.19).

3 Leave Field, Procedure, Status, and Text Type blank.

4 Complete the other fields:

Language	Enter an appropriate two-letter language code (such as US for English).
Field Help Load File	Enter the full path to: *DataSyncInstallDir*\us\hlp\fieldhlp.fhd
Skip loading help with lower status	Enter Yes.

5 Press Go to begin the load.

6 Exit Field Help Load when the load is finished.

7 Update user profiles to access character-format help. In MFG/PRO 9.0 and eB, open User Interface Profile (36.20.4). In MFG/PRO eB2, use User Maintenance (36.3.18).

8 Leave Userid blank; this updates the profile for all users who do not have individual profiles. Press Go.

9 To set the profile for character help, ensure that WinHelp? is unchecked.

10 Press Go to save the changes.

Setting Up Services on the Database Server

Because MFG/PRO client sessions need to connect to the DataSync database, edit the `services` file to include network services for the DataSync database server.

Locate your services file (usually `c:winnt\system32\drivers\etc`) and use a text editor to add the service `dsy-server`. Any available port number is acceptable, but the type `tcp` must be used. See the following example.

```
dsy-server  4210/tcp  # DataSync production database server
```

Modifying the Server Startup

A database set controls the connection parameters for creating client and server startup scripts for MFG/PRO sessions. Complete these steps to add the DataSync database to the required MFG/PRO database sets and modify MFG/PRO server scripts.

See “Generating Client Scripts” on page 51 to modify client scripts.

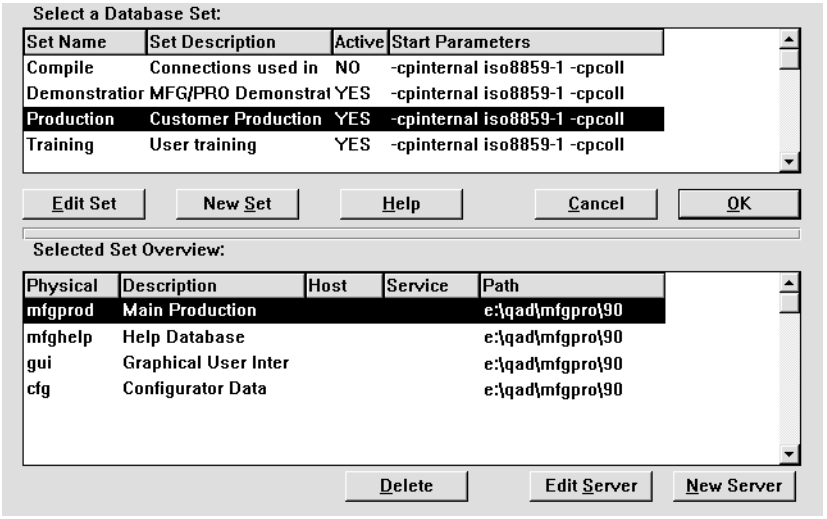
Note This section assumes you have already completely installed MFG/PRO.

At a minimum, you must update the production and compile database sets to implement DataSync. If you want to implement DataSync in `mfgtrain` or `mfgdemo` for training or custom development environments, update these database sets as well. Repeat the following instructions for each affected database set.

Update MFG/PRO Database Set Server View

Follow these steps to create the client and server views for the DataSync database for each required database set.

1. Start MFG/UTIL on the MFG/PRO database server by double-clicking the MFG/UTIL icon in the MFG/PRO program group.
2. In the MFG/UTIL main menu, select the Configure menu and choose Any Database Set in MFG/PRO 9.0; in MFG/PRO eB and eB2, choose Database Set Maintenance.
3. In the Database Set Configuration window, select the database set you want to update.



4. Click New Server to display the Server View of Database Parameters window.
5. Refer to the following table as you complete the Server View of Database Parameters window for the selected database.

Physical:	Enter or accept the database name to include in this set.
Description:	DataSync database
Server Parms:	`-cpstream ibm850 -cpinternal iso8859-1 -cpcoll basic -L 8000 -c 250 -B 1000`

Service:	Service name, `dsy-server` recommended. See “Setting Up Services on the Database Server” on page 41.
Path:	Enter the DataSync database directory.

6 Click OK in the Server View of Database Parameters window.

7 Count the number of databases displayed in the bottom frame and record for use in step 9.

Number of databases: _____

8 With the database set selected, select the Edit Set option.

9 By default, the maximum number of concurrently connected Progress databases is 5. If the total number of databases is five or more, add `-h` *`number of databases`* (from step 7) at the beginning of the Start Parms field.

10 Click OK.

11 Click OK in the Database Set Configuration window.

Generate Server Scripts

This procedure uses MFG/UTIL. Alternatively, you can manage server startup and shutdown with the Progress ProControl Utility. ProControl is described in the Progress system administration documentation.

MFG/UTIL menus changed between MFG/PRO 9.0 and MFG/PRO eB. Choose the instructions appropriate for your system.

For MFG/PRO 9.0

Follow this procedure for MFG/UTIL in MFG/PRO 9.0:

1 From the MFG/UTIL Scripts menu, choose Generate Server Startup and Shutdown.

2 From Create Server Scripts, select all databases that include DataSync.

3 Click OK.

4 Click Yes in response to the Overwrite Previous Scripts? prompts. The scripts launch the DataSync database servers the next time you start MFG/PRO.

5 Click Close to exit from MFG/UTIL when finished.

For MFG/PRO eB and eB2

Follow this procedure if you are using MFG/UTIL in MFG/PRO eB or eB2:

1 From the MFG/UTIL Scripts menu, choose Scripts|Generate Scripts.

2 In the MFG/PRO Database Set Selection window, select all databases that include DataSync and click Next.

3 Choose the Program Folder and click Next.

4 Verify the displayed information and click Next.

5 Click OK to exit MFG/UTIL when finished.

Running the File Server Installation

The file server can be located on the same machine as the Windows database server, or as with a UNIX database server, on a separate Windows machine. When the file server is on the Windows database server machine, it is like a *host client*. Additional clients you install to connect to the file server, regardless of where the file server is located, are called *remote clients*.

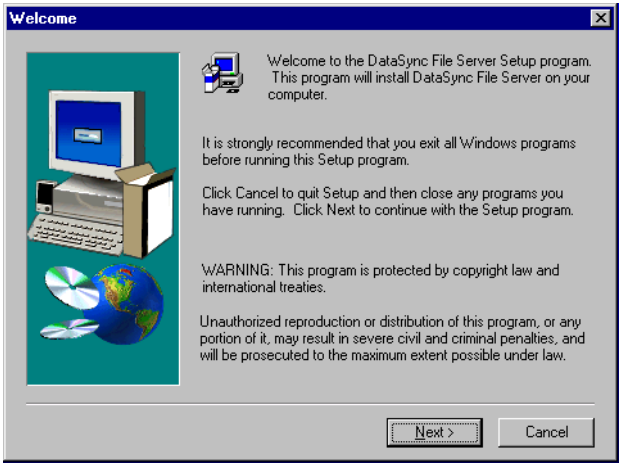
If you are installing the file server on a machine separate from the database server, make sure you have access to the database server machine.

1 Insert the DataSync CD-ROM in the CD-ROM drive.

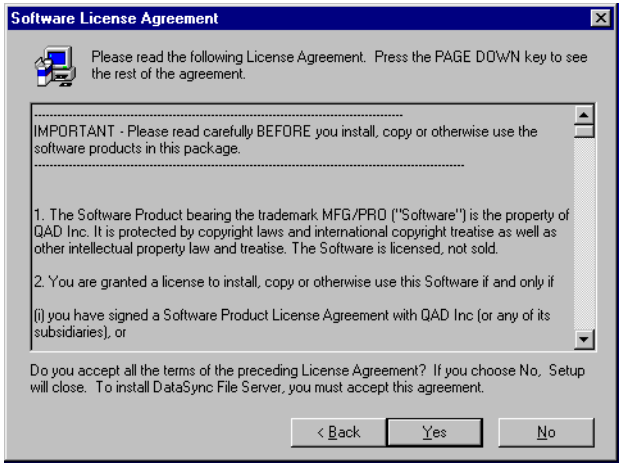
2 Run the `setup.exe` program using File Manager, Windows Explorer, or the Run command in the Windows Start menu.

```
CD-ROMDriveName:\nt\setup.exe
```

3 At the Welcome window, click Next.

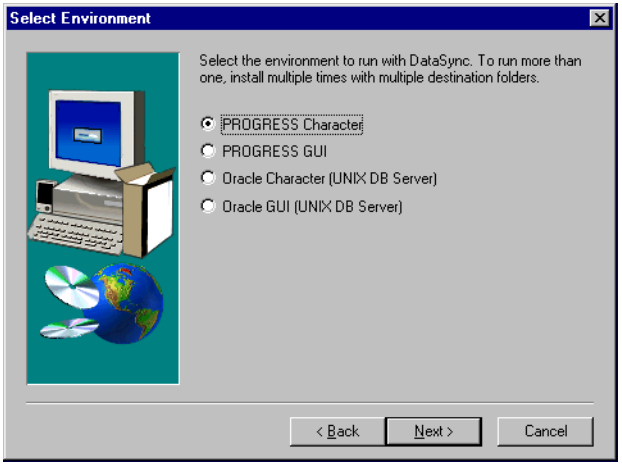


4 At the License Agreement window, click Yes.



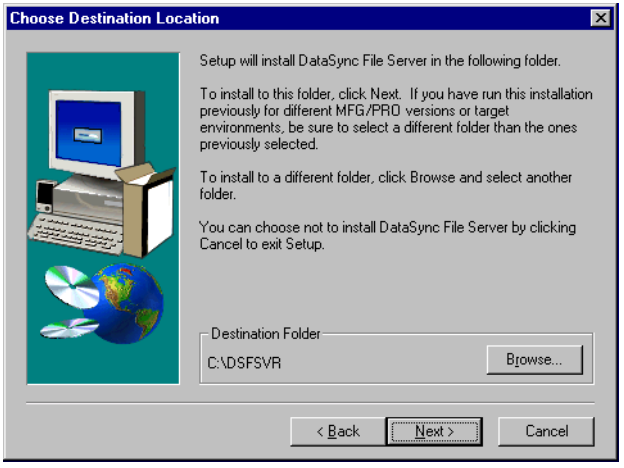
5 At the MFG/PRO Version window, select the version to install—9.0, eB, or eB2—and click Next.

6 At the Environment window, select the environment to install and click Next.

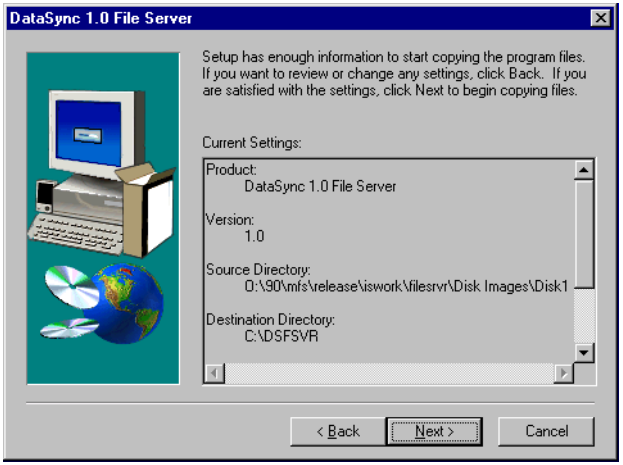


7 Specify the directory in which you want to install the DataSync File Server. Accept the default, or use the Browse button to select an alternate directory. Click Next to continue. This directory is referred to as *DataSyncFileSvrInstallDir*.

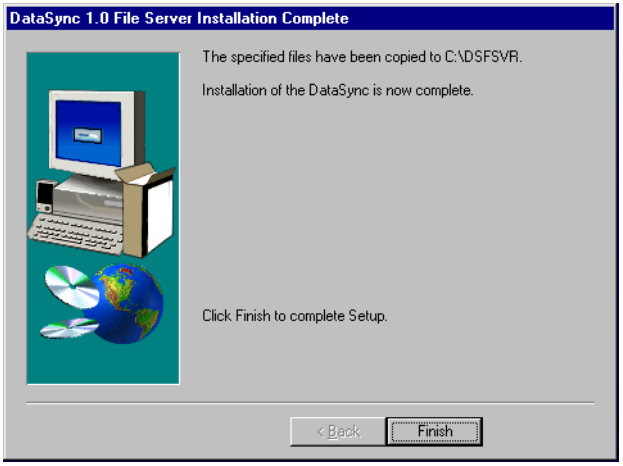
Important Make sure that the machines you plan to set up as DataSync remote clients can access this directory. The DataSync remote client setup executable is run from the DataSync File Server installation directory.



8 Verify that the installation information is correct. If any of the information is incorrect, click Back. Otherwise, click Next.



9 When the Installation Complete window displays, click Finish to complete the DataSync File Server installation.



Setting Up Services on the Clients

For each client workstation to be configured, you must edit the `services` file. The services names and TCP/IP addresses and port numbers must match those specified when you installed DataSync on the database server, as described under “Setting Up Services on the Database Server” on page 41.

Modifying the Client Startup

Complete these steps to update the client view of the DataSync database in all required MFG/PRO database sets and generate new MFG/PRO client scripts.

At a minimum, you must update the production and compile database sets to implement DataSync. If you want to implement DataSync in `mfgtrain` or `mfgdemo` for training or custom development environments, update these database sets as well. Repeat the following instructions for each affected database set.

Update MFG/PRO Database Set Client View

These steps create client views for the DataSync database in the required MFG/PRO database sets:

1. Start MFG/UTIL on a PC by double-clicking the MFG/UTIL icon in the MFG/PRO program group or selecting it from the Start menu.
2. In the MFG/UTIL main menu, select the Configure menu and choose Any Database Set in MFG/PRO 9.0 and Database Set Maintenance in MFG/PRO eB and eB2.
3. In the Database Set Configuration window, select the required database sets.
4. Click New Client to display the Client View of Database Parameters window.
5. Refer to the following table for appropriate field entries for the database. If you are connecting client/server to the database server, enter your actual DataSync database server host name in the Host field.

Physical:	Enter the physical name of the DataSync database; accept the default if there is one.
Logical:	`qadmfs`
Description:	DataSync database
Connect Parms:	`-trig triggers`
Connection Type:	Client Server or Local

Host:	Enter *yourhostname*; for local connections, leave blank.
Service:	For client/server connections, enter the Service name, `dsy-server` recommended. See “Setting Up Services on the Database Server” on page 41. Leave blank for local connections.

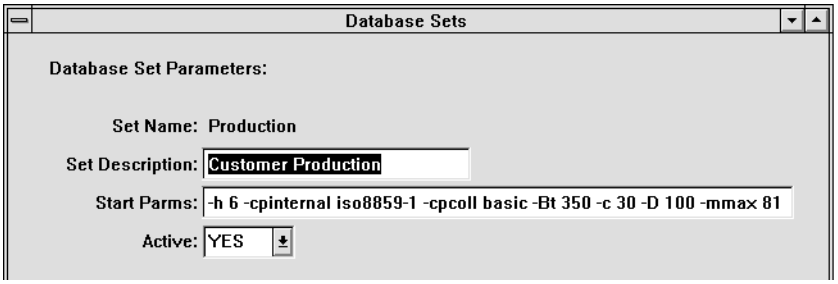
6 Click OK in the Client View of Database Parameters window.

7 Count the number of databases in this set and record for use in step 9.

Number of databases: _____

8 With a required database set selected, click Edit Set to display the Database Sets window.

9 By default, the maximum number of concurrently connected Progress databases is 5. If the total number of databases is five or more, add `-h` *`number of databases`* (from step 7) at the beginning of the Start Parms field.



10 Click OK in the Database Sets window.

11 Click OK in the Database Set Configuration window.

Modifying the Client PROPATH

During the DataSync client installation, the path to `qqapi.ini` is automatically included in the PROPATH of the local MFG/PRO startup icons.

Follow these steps to modify or adjust the PROPATH for a DataSync client:

1. Right-click on the local MFG/PRO startup icon and select Properties.
2. In the Properties Window, choose the Shortcut tab. In the Target field, locate the `-ininame` variable and record the path to the `-ininame` file.

   Usually, this file is located in your MFG/PRO client working directory and is called `progress.svg`, `progress.vga`, or `progress.char`, depending on the display type.
3. Open `-ininame` in a text editor.
4. In the PROPATH section, enter the path to `qqapi.ini` before the MFG/PRO directory paths.

   Note If the DataSync file server is installed on a different computer than the client, use Network File System (NFS) to mount the file server machine to an available drive.

   ```
   PROPATH=.,E:\DataSyncFileSvrInstallDir,
   E:\DataSyncFileSvrInstallDir\us\bbi,
   C:\mfgcli\images.pl,C:\mfgguifs,
   C:\mfgguifs\us\bbi,C:\mfgcli
   ```
5. Save your changes and exit the text editor.

Generating Client Scripts

For MFG/PRO 9.0

Follow this procedure for MFG/UTIL in MFG/PRO 9.0:

1. In the MFG/UTIL main menu, select the Scripts menu and choose Generate User Startup.
2. In the MFG/PRO Database Set Selection window, select all databases that include DataSync and click Next.
3. On the File menu, select Save Default mfgutil.ini. At the Save to Administration Directory prompt, click Yes.
4. When the MFG/UTIL main menu reappears, choose Exit from the File menu.

For MFG/PRO eB and eB2

Follow this procedure for MFG/UTIL in MFG/PRO eB and eB2:

1. In the MFG/UTIL main menu, select the Scripts menu and choose Generate Scripts.
2. In the MFG/PRO Database Set Selection window, select all databases that include DataSync and click Next.
3. Choose the Program Folder and click Next.
4. When the MFG/UTIL main menu reappears, choose Exit from the File menu.

Installing Schema Triggers

Install the schema triggers in the MFG/PRO and DataSync databases. These triggers capture the data updates for synchronization between databases.

1. Copy all files from *DataSyncFileSvrInstallDir*\triggers to *MFGPROInstallDir*\triggers.
2. Start an MFG/PRO session with both the MFG/PRO and DataSync databases connected.
3. Invoke the Progress Editor.

   Note These instructions are written for the Progress GUI interface. For the character interface, access the working database from the Data Dictionary.
4. Choose Data Administration from the Tools menu.
5. Choose Select Working Database from the Database menu.
6. Select the qaddb database from the list of databases and click OK.
7. Return to the Progress Editor and unfreeze the tables in the MFG/PRO database:

   run *DataSyncFileSvrInstallDir*\us\src\utunfrz.p
8. Press Go.
9. Choose Data Administration from the Tools menu.
10. Choose Load Data and Definitions from the Admin menu.
11. Choose Data Definitions (.df file).
12. Enter the input file:

    DataSyncInstallDir\us\mfg\mfgtrig.df
13. Click OK to install the triggers into the MFG/PRO database.
14. In the Progress Editor, refreeze the tables in the MFG/PRO database:

    run *DataSyncFileSvrInstallDir*\us\src\utfrz.p
15. Choose Data Administration from the Tools menu.

16 Choose Select Working Database from the Database menu.

17 Select `qadmfs` from the list of databases and press Enter.

18 Repeat steps 7 through 11 for the DataSync database, `qadmfs`.

19 Enter the input file:

```
DataSyncInstallDir\us\dsy\dsytrig.df
```

20 Press Go to install the triggers into the DataSync database.

21 In the Progress Editor, refreeze the tables in the DataSync database:

```
run DataSyncFileSvrInstallDir\us\src\utfrz.p
```

Configuring Remote Clients

Remote clients are Windows clients that connect to a Windows file server or host client. To update remote clients, update the client PROPATH as needed and regenerate scripts.

Compiling Code

During installation of DataSync, the `qqmfsin.i` include file is copied to the installation directory. This file indicates to Q/LinQ that DataSync is installed. In order for the DataSync frames and fields to appear in Q/LinQ programs, the Q/LinQ programs must be recompiled with the version of `qqmfsin.i` included on your installation CD.

Use MFG/UTIL to compile the Q/LinQ programs. Make sure that the compile PROPATH includes the location of the `qqmfsin.i` file installed with DataSync:

```
:/DataSyncInstallDir/us/xrc:/QlinqInstallDir/us/xrc
:/MFGPROInstallDir/us/xrc
```

Follow these steps to run the compile procedure:

1 Start MFG/UTIL:

```
./mfgutil
```

2 From the Program menu, choose Compile Procedures.

3. In the Source Directory field, enter the name of the */QlinqInstallDir*. Add the `xrc` directory for the installed language:

   /QlinqInstallDir`/us/xrc`

4. Select the All files in the source directory radio button.

5. Check the Save new `.r` files option.

6. Enter your two-letter MFG/PRO language abbreviation in the Language field.

7. Use the browse button to locate the Q/LinQ compile list in the */QlinqInstallDir* directory. The compile list file name is `utcompil.wrk`.

8. In the Destination Directory field, enter the name of the */QlinqInstallDir* directory:

   /QlinqInstallDir

9. Enter Compile in the Database Set field.

10. Set the Compile Propath to include the `/xrc` subdirectories of DataSync, followed by Q/LinQ, and then the standard MFG/PRO compile PROPATH directories, as in the following example:

    `:/`*DataSyncInstallDir*`/us/xrc:/`*QlinqInstallDir*`/us/xrc`
    `:/`*MFGPROInstallDir*`/us/xrc`

    Note The *DataSyncInstallDir*`/us/xrc` directory must come at the beginning of the PROPATH.

11. Click Compile. The compile runs through approximately 80 programs and should take just a few minutes.

12. When the compile is complete, click Close to close the log window.

13. Exit MFG/UTIL.

Section 2

Using Data Synchronization

This section includes an introduction to Data Synchronization as well as chapters on setup and between-database synchronization.

Chapter 4

Data Synchronization Overview

This chapter is an introduction to the structure and function of Data Synchronization (DataSync).

Introduction

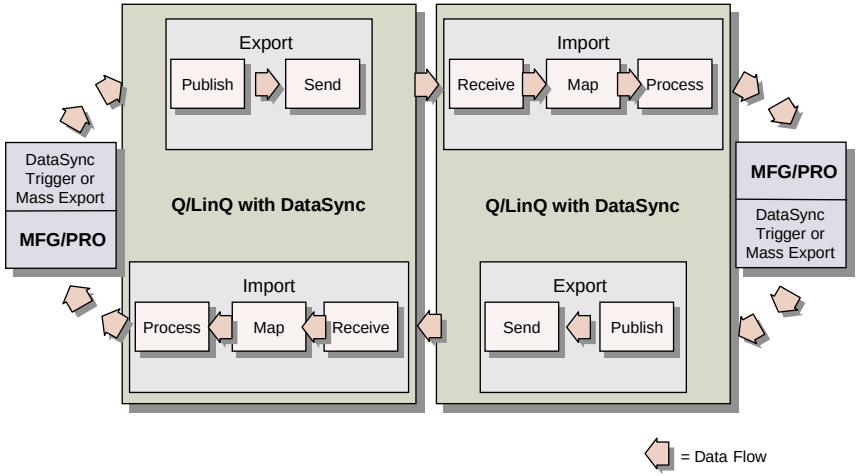
DataSync synchronizes static data such as item master data among multiple, distributed MFG/PRO databases. The data fields—the *payload*—and the specific records to be updated—the *filter* or selection criteria—are specified in a *synchronization profile*. DataSync does not synchronize transaction data or entire databases.

The data, as *documents*, is exported from and imported to each MFG/PRO database using Q/LinQ. See *External Interface Guide: Q/LinQ* for a complete discussion of importing and exporting documents with Q/LinQ.

Data Flow

When a table included in a synchronization profile is updated in a source MFG/PRO database, DataSync captures the data specified in the synchronization profile and passes it to Q/LinQ. Q/LinQ publishes the data to an export document and exports that document to Q/LinQ in a destination MFG/PRO database. The destination Q/LinQ receives the document, maps the data, and processes the data into the destination database.

Fig. 4.1
Data Flow



Source and destination databases can be in one-to-one, one-to-many, and many-to-many relationships. A source database can synchronize different tables with different destination databases or different fields from the same table with different destination databases.

Each document represents a single add, change, or delete action for a specific master table record. DataSync documents can be viewed and reported on in the same ways as all other Q/LinQ documents.

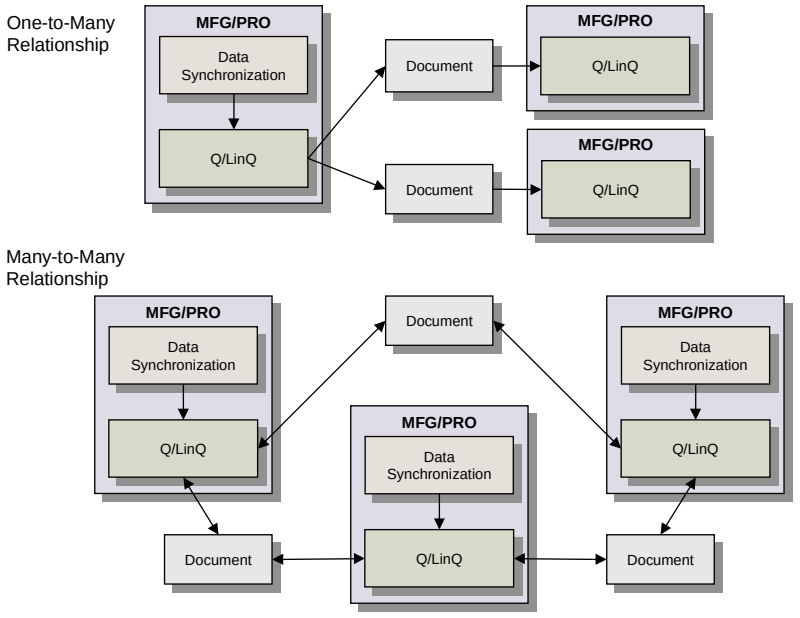


Fig. 4.2 Source and Destination Database Relationships

Event Capture

When data that is included within a synchronization profile changes in one of your MFG/PRO databases—either through addition, deletion, or modification—the event is captured using QAD-supplied *schema trigger*s, which publish the captured and filtered data to Q/LinQ as export synchronization documents.

Synchronization Documents

DataSync builds export documents with records in Q/LinQ triplet format from data captured and filtered as specified by synchronization profiles. Each data field is represented with up to three character tokens:

```
[<context>]<name>=<value>
```

Where the token definitions are:

`<context>`	An optional qualifier used by DataSync to identify the table name
`<name>`	The name of the MFG/PRO field
`<value>`	The value of the field expressed as an ASCII string

Each triplet is terminated by an end-of-line (carriage return or line feed), a pipe character (|), or a delimiter defined in the Data Mapping Parameters frame of Register External Applications (36.8.1.1).

Note You cannot specify the delimiter character in MFG/PRO 9.0; in this release, the pipe character (|) is always used.

Specifying Actions

Each document also includes a field indicating which type of action the document represents:

`action=A`	Add the data to the destination database.
`action=C`	Change the data in the destination database.
`action=D`	Delete the data from the destination database.

For change actions, DataSync exports only net changes to a record, that is, only the fields that have changed since the last maintenance transaction.

Example DataSync publishes a document with this line when only the order quantity for the item has changed:

```
[pt_mstr]|action=C|pt_part=10-100-A|pt_ord_qty=120
```

Identifying Records

Some tables that can be updated by DataSync lack a meaningful unique key for the destination database to use for identifying records. For example, the price list detail table (pid_det) uses a database sequence (pid_list_id) in its unique key and database sequences are not meaningful across MFG/PRO databases.

When a table lacks a meaningful unique key, DataSync creates a document with key information from a related master record. With this combination of master record data and detail record data, the destination database can identify the appropriate record to update.

Example This document for making price list detail changes includes unique identifying information from the price list master record:

```
[pi_mstr]|pi_list=test01|pi_cs_type=9|pi_cs_code=qadall|
pi_part_type=6|pi_part_code=qadall|pi_curr=USD|pi_um=EA|
pi_start=01/04/00

[pi_det]|action=C|pi_amt=50|pid_list_id=100051|pid_qty=5
```

Communication Between Databases

DataSync offers three types of communication between databases:

See page 70 for details.

- File transfer
- Q/LinQ stream API
- Q/LinQ messaging API

When using an API, specify the communication method as part of the database registration.

For file transfer, users can provide their own batch control procedures for data integrity and loss protection. It is possible to read files continuously into Q/LinQ with a user-written polling procedure.

Data Mapping

In the source MFG/PRO database, Q/LinQ creates DataSync export documents in triplet format. In the destination MFG/PRO database, Q/LinQ uses table-specific mapping programs to map the data to CIM format.

See “Register Import Specifications” on page 88.

For the programs listed in Table 4.1, DataSync can process batch delete transactions through the CIM interface. The batch delete functionality is enabled only when the programs are accessed through a batch process; it is not enabled when the programs are used interactively. The one-character, unlabeled batch delete field is not visible to users, requires no changes to the user interface, and does not break existing CIM data files. DataSync captures the delete action and the response to the Please Confirm Delete prompt. Use Ctrl+F in any of these programs to confirm that batch delete is enabled.

Tables to Synchronize

Table 4.1 lists the database tables that can be updated using DataSync and that support batch delete. Also listed are the MFG/PRO programs that are typically used to update the tables interactively.

Table 4.1
Tables to Synchronize

Table	Table Description	Menu Label	Program
ac_mstr	Account Master	Account Code Maintenance	glacmt.p
an_mstr	Analysis Code Master	Analysis Code Maintenance	ppacmt.p
anl_det	Analysis Code Link Detail	Analysis Code Link Maint	ppacln.p
ans_det	Analysis Code Selection Detail	Analysis Code Select Maint	ppacrl.p
bom_mstr	Product Structure Bill of Material	Product Structure Code Maint	bmmamt.p
cc_mstr ccd1_det ccd2_det	Cost Center Master Cost Center – Account Validation Detail Cost Center – Sub-Account Validation Detail	Cost Center Code Maintenance	glccmt.p
cd_det	Master Comments	Master Comment Maintenance	gpcmmt.p
cm_mstr ad_mstr ls_mstr	Customer Master Address Master Address List Master	Customer Maintenance	adcsmt.p
cm_mstr ad_mstr ls_mstr	Customer Master Address Master Address List Master	Customer Ship-To Maintenance	adstmt.p

Table 4.1 — *Tables to Synchronize* — (Page 1 of 3)

Table	Table Description	Menu Label	Program
code_mstr	Generalized Codes Master	Generalized Codes Maintenance	mgcodemt.p
cp_mstr	Customer Item Master	Customer Item Maintenance	ppcpmt.p
cs_mstr	Cost Set Master	Cost Set Maintenance	csmsmt.p
cu_mstr	Currency Master	Currency Maintenance	mccumt.p
dpt_mstr	Department Master	Department Maintenance	rwdpmt.p
en_mstr	Entity Master	Entity Code Maintenance	glenmt.p
exr_rate	Exchange Rate	Exchange Rate Maintenance	mcexrmt.p
fcs_sum	Forecast Summary	Forecast Maintenance	fcfsmt01.p
glc_cal	General Ledger Calendar	GL Calendar Maintenance	glcalmt.p
is_mstr isd_det	Inventory Status Master Inventory Status Detail	Inventory Status Code Maint	icstmt.p
ls_mstr[a]	Address List Master	Address List Type Maintenance	adlsmt.p
pc_mstr	Price List Master – Purchasing	Price List Maintenance	pppcmt.p
pi_mstr pid_det	Price List Master Price List Detail – Sales	Price List Maintenance	pppimt.p
pl_mstr	Product Line Master	Product Line Maintenance	ppplmt.p
ps_mstr	Product Structure Master	Product Structure Maintenance	bmpsmt.p
pt_mstr	Item Master	Item Master Maintenance	ppptmt.p
ro_det	Routing Operation Detail	Routing Operation Maintenance	rwromt.p
sb_mstr sbd_det	Sub-Account Master Sub-Account – Account Validation Detail	Sub-Account Code Maintenance	glsbmt.p
si_mstr	Site Master	Site Maintenance	icsimt.p
spt_det sct_det	Cost Simulation Item Detail Cost Simulation Total Detail	Item-Element Cost Batch Load	ppcsbtld.p
um_mstr	Alternate Unit of Measure Master	Unit of Measure Maintenance	pppummt.p
vd_mstr ad_mstr ls_mstr	Supplier Master Address Master Address List Master	Supplier Maintenance	advnmt.p

Table 4.1 — *Tables to Synchronize* — (Page 2 of 3)

Table	Table Description	Menu Label	Program
vd_mstr ad_mstr ls_mstr	Supplier Master Address Master Address List Master	Supplier Remit-To Maintenance	adrtmt.p
vp_mstr	Supplier Item Master	Supplier Item Maintenance	ppvpmt.p
wc_mstr	Work Center Master	Work Center Maintenance	rwwcmt.p

Table 4.1 — *Tables to Synchronize* — (Page 3 of 3)

a. System-assigned list types are not synchronized. See the discussion of addresses in “Setting Up Addresses” on page 78.

Data Synchronization Menu

Table 4.2 lists the DataSync programs.These programs are discussed in detail in Chapter 5.

Table 4.2 Data Synchronization Programs

Menu Number	Description	Program
36.8.8	Destination List Maintenance	qqdalmt.p
36.8.22	Data Synchronization Setup Menu	
36.8.22.1	Synchronization Profile Maintenance	qqsypmt.p
36.8.22.2	Synchronization Profile Inquiry	qqsypiq.p
36.8.22.3	Sync Table–Field Maintenance	qqsytfmt.p
36.8.22.4	Sync Table–Field Browse	qqbr030.p
36.8.22.8	Synchronization Mass Export	qqsymsex.p

Chapter 5

Setting Up Data Synchronization

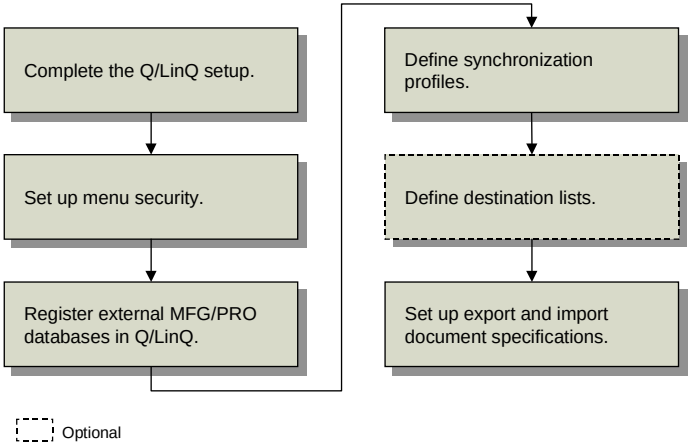
This chapter describes setting up Data Synchronization (DataSync) to export and import master data.

Introduction

DataSync requires setup by the Q/LinQ or MFG/PRO system administrator to enable synchronization among multiple MFG/PRO databases.

Figure 5.1 illustrates a typical work flow for setting up and maintaining DataSync.

Fig. 5.1
DataSync Setup Flow



The following sections cover the setup tasks:

- Complete the Q/LinQ setup.
- Set up menu security.
- Register external MFG/PRO databases in Q/LinQ.
- Define the synchronization profiles.
- Optionally define destination lists.
- Register export specifications in Q/LinQ for outbound synchronization documents.
- Register import specifications in Q/LinQ for inbound synchronization documents.

Complete Q/LinQ Setup

Install and set up Q/LinQ on each MFG/PRO database that will export data to or import data from other MFG/PRO databases for data synchronization.

See *External Interface Guide: Q/LinQ*.

Complete the DataSync installation:

- For UNIX systems, see Chapter 2, “UNIX Installation,” on page 15.
- For Windows systems, see Chapter 3, “Windows Installation,” on page 33.

Set Up Menu Security

Since DataSync is a data administration tool rather than end-user functionality, use Menu Security Maintenance (36.3.1) to set menu-level security for the programs in Table 4.2 on page 64 so that they are accessible to the MFG/PRO or Q/LinQ administrator only.

See *User Guide: Manager Functions* for details on security.

This limited access is especially important for Sync Table–Field Maintenance (36.8.22.3), which identifies the tables and fields that can be synchronized by DataSync. The DataSync installation procedure populates this program with the available tables and fields.

Important Using Sync Table–Field Maintenance to add other tables or fields would instruct DataSync to synchronize tables and fields not supported by the software and lead to runtime Progress errors.

Register External MFG/PRO Databases

In each source MFG/PRO database, register each destination MFG/PRO database as a Q/LinQ external application in Register External Application (36.8.1.1; 36.8.1 in 9.0).

See *External Interface Guide: Q/LinQ* for a complete discussion of registering external applications.

Accept the Q/LinQ defaults except where noted.

Create Database IDs

Setting up application IDs for registering databases requires planning. Two databases that are exchanging data must identify each other using exactly the same application ID. Create and use a consistent naming scheme for databases to avoid registration errors:

```
ERROR: APPLICATION “<Application ID>” NOT REGISTERED
```

Example 1: Many-to-Many

See Figure 4.2 on page 59.

For three databases (`mfg-1`, `mfg-2`, `mfg-3`) that each exchange data with all of the others, there are three possible database combinations. Assign a name to each of those combinations and use those names as the application IDs when registering the databases in Q/LinQ.

In this Database	Register These Application IDs
mfg-1	mfg-1-2, mfg-1-3
mfg-2	mfg-1-2, mfg-2-3
mfg-3	mfg-1-3, mfg-2-3

Example 2: One-to-Many

See Figure 4.2 on page 59.

For a configuration of one central database (`mfg-C`) and two peripheral databases (`mfg-E` and `mfg-W`), there are only two possible database combinations. The application IDs and the databases where they must be registered are shown in this table.

In this Database	Register These Application IDs
mfg-C	mfg-C-E, mfg-C-W
mfg-E	mfg-C-E
mfg-W	mfg-C-W

Register Database IDs

In Register External Application, enter a unique database ID in Application ID. Each application ID identifies the data synchronization combination of the current MFG/PRO database—the source database—and an external MFG/PRO database—the destination database. Also enter the name and description of the database synchronization represented by Application ID.

In the Select Data Update frame, enter Yes in these fields:

- Interface Control Parameters, to update e-mail settings
- Default Communications Parameters, to set up between-database communication
- Miscellaneous Defaults, to embed document control tags when using the stream or messaging API

Press Go to display the first frame selected for update. After making edits, press Go again to display the next frame selected for update. Press End at any time to return to the main program screen.

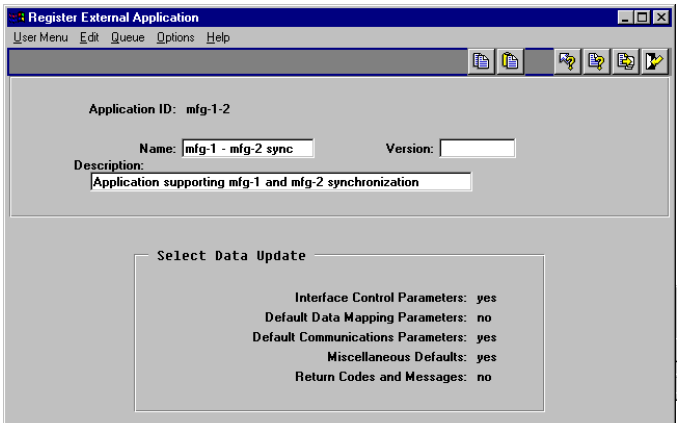


Fig. 5.2
Register External Application (36.8.1.1; 36.8.1 in 9.0)

Set E-Mail Notification

The e-mail notification settings default from Q/LinQ Control (36.8.24). For DataSync, set up database-specific e-mail notification in the Interface Control Parameters frame.

Enter the name and preferred e-mail notification level of the DataSync system administrator who is the default recipient of any Q/LinQ-generated e-mail messages about this database.

Press Go to display the next frame selected for update.

Fig. 5.3
Register External Application, Interface Control Parameters

Set Up Communication Between Database

See *External Interface Guide: Q/LinQ* for a discussion of exchanging documents as text files or with APIs.

DataSync documents can be passed between databases as text files or using one of the communication APIs.

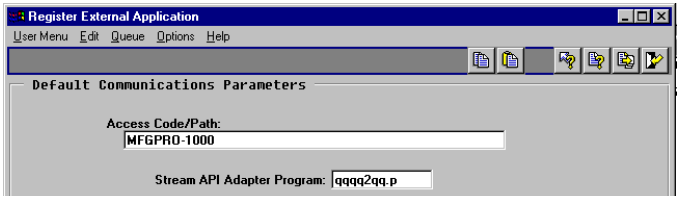
Stream API

Use the DataSync adapter, `qqqq2qq.p`, to exchange data through a direct Q/LinQ-to-Q/LinQ Progress database connection. The Progress two-phase commit feature ensures the data integrity of the transmission. The adapter can create a connection between two Progress databases or two Oracle databases (UNIX only); it cannot create a connection between a Progress database and an Oracle database.

In the Default Communication Parameters frame, enter the logical name for the external database in Access Code/Path. Define the logical name for each external database in Database Connection Maintenance (36.6.1).

Enter the adapter name in Stream API Adapter Program.

Fig. 5.4
Default Communications Parameters: Stream API



Messaging API

For DataSync, the messaging API establishes a direct TCP/IP connection with Q/LinQ in an external MFG/PRO database. This requires a port for each direction of the DataSync connection.

Note To use the messaging API, leave the Stream API Adapter Program field blank.

Use these guidelines for entering information in both the export and import fields of the Messaging API Socket Parameters frame:

- If the current database initiates the connection as the active caller, enter the host name or the Internet protocol (IP) address and the port number of the remote host, the listener.
- If the remote database initiates the connection and the current database is the passive listener, no host name, IP address, or port number is required.
- For Q/LinQ Initiates Connection:
  - Enter Yes to have the current database actively request a connection with the external MFG/PRO database on the designated host. This means that the current database is the caller or client for the TCP/IP session.
  - Enter No to have the current database monitor its local socket for a connection request from the external MFG/PRO database. This means that the current database is the listener or server for the TCP/IP session.

  Note Q/LinQ only initiates the connection; it does not start or stop any program in the external MFG/PRO application.

As shown in Figure 5.5 and Figure 5.6, for two-way data synchronization, the import and export port designations must be complementary between pairs of databases.

Fig. 5.5
Communication Parameters: Database MFGPRO-2000

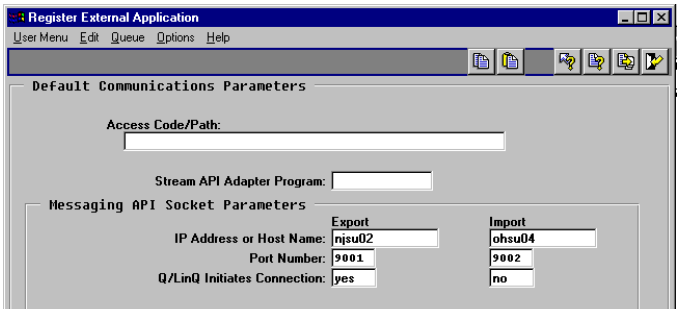
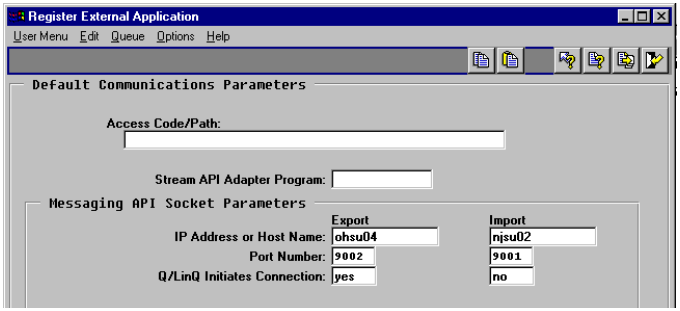


Fig. 5.6
Communication Parameters: Database MFGPRO-3000



Miscellaneous Defaults

In the Miscellaneous Defaults frame, enter Yes in Precede Data with Tags to embed document control tags in front of the actual data when using the stream or messaging API to send documents to external databases. Control tags are always included when sending documents to a file.

See *External Interface Guide: Q/LinQ* for a discussion on document control tags.

Review Tables and Fields for Synchronization

The DataSync installation populates Sync Table–Field Maintenance (36.8.22.3) with the names of the tables and fields that can be synchronized between MFG/PRO databases.

See Table 4.1, “Tables to Synchronize,” on page 62.

Important To avoid Progress runtime errors, it is important to prevent changes to the data maintained in Sync Table–Field Maintenance.

See “Set Up Menu Security” on page 67.

When you define a profile, Synchronization Profile Maint (36.8.22.1) validates tables and fields proposed for the profile against those in Sync Table–Field Maintenance.

To prepare for defining profiles, use Sync Table–Field Browse (36.8.22.4) to review the fields that can be synchronized from each table that can be synchronized.

Define Synchronization Profiles

Synchronization profiles specify which data—records and fields—to synchronize between databases and which types of data changes—add, change, delete—to synchronize. Since profiles are defined in the source database without reference to a destination database, they can be used to implement synchronization with multiple destinations.

This section covers general profile setup as well setup for tables with dependencies.

Use Synchronization Profile Maint (36.8.22.1) to define profiles. Use Synchronization Profile Inquiry (36.8.22.2) to review the contents of synchronization profiles.

Warning Synchronization Profile Maint does not execute properly if the user is connected to more than one main MFG/PRO database. Once created, profiles can be used during MFG/PRO sessions in which multiple databases are connected.

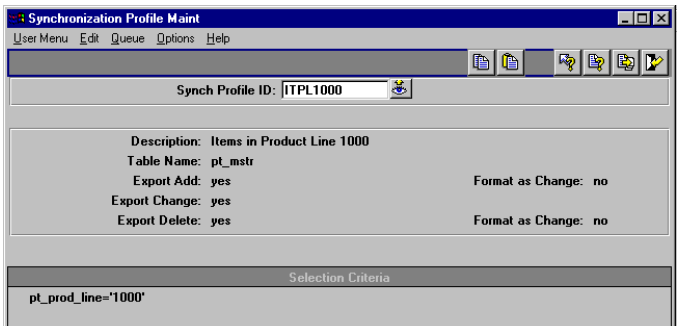
General Profile Setup

Synchronization profiles contain the following:

See Table 4.1 on page 62.

- The MFG/PRO table with data to be synchronized. Each profile can specify only one table.
- Settings indicating which events (add, change, delete) should create a synchronization document.
- Selection criteria specifying which records from the table should be synchronized. This is the filtering criteria.
- The fields in the specified table whose value will be included in the synchronization document. This is the payload.

Fig. 5.7
Synchronization Profile Maint (36.8.22.1)



Sync Profile ID. Enter a unique identifier for the synchronization profile.

Description. Enter up to 40 characters describing the synchronization profile.

Tip
You cannot change this value after it has been defined.

Table Name. Enter the name of the table with fields to be included in the synchronization document. This table must be listed in Sync Table–Field Maintenance.

Export Add. Enter Yes to export data records that now match the selection criteria of the synchronization profile where previously they did not match the criteria. A record may be new or it may now match the selection criteria because its value has been updated.

Format as Change. Enter Yes to format records selected by Export Add as changes when exporting. This field should be Yes only when the destination databases have already set up all possible records in advance. Set this field to Yes to avoid sending an add-record instruction to a database where the record already exists.

Export Change. Enter Yes to export data records that are updated. This applies to records that previously met and still meet the selection criteria of the synchronization profile.

Export Delete. Enter Yes to export a delete instruction for a record with a value that no longer meets the selection criteria of the synchronization profile. The record may continue to exist in the source database but its data is no longer exported for synchronization.

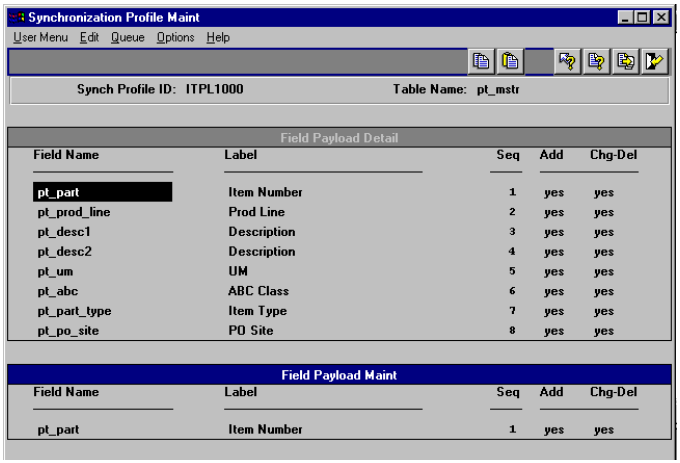
Format as Change. Enter Yes to format records selected by Export Delete as changes when exporting. Set this field to Yes when records cannot be deleted from the destination database but record status must change, such as an item changing from an active to an obsolete state.

Selection Criteria. Enter legal Progress 4GL syntax that DataSync uses to select records from the specified table to synchronize with one or more external MFG/PRO databases. Use this field to create data record subsets such as active status or product line 100.

Use Progress functions or operators in any combination containing one or more levels of parenthesized expressions if necessary. Use only logical expressions; do not use IF, ELSE, WHERE, or other reserved words. References can be made only to the table associated with the current synchronization profile. DataSync compiles the entered expression and returns any Progress error messages as warning conditions to the user.

Blank causes all records in the table to be subject to synchronization.

Fig. 5.8
Synchronization Profile Maint, Field Payload Frames



The Field Payload Detail frame displays current settings for each field in the table.

Use the Field Payload Maintenance frame to add fields to the profile payload and modify or delete existing fields in the payload.

Field Name. Select the field to be added to, modified, or deleted from the profile payload.

Sequence. Enter the sequence of the field in the profile payload. This field does not affect DataSync processing. Use it to order the fields for convenience.

If a sequence number is not assigned or if a number is assigned that is greater than the number of fields in the profile, DataSync assigns the next available number to the field. As you assign fields different numbers, DataSync closes gaps in the sequence and renumbers all fields so that the highest sequence number is always the number of fields in the profile payload.

Required on Add. Use this to export key or other fields that the destination database requires for a new record.

Enter Yes:

- To always export the field for add actions for records in this table.
- To export records from this table only if this field has a non-null value.

Example Always export product line (pt_prod_line) when adding item master (pt_mstr) records. Although it is not a pt_mstr key, the destination database requires a value for this field.

Require on Change or Delete. Enter Yes to always export the field for change or delete actions. Use this to export key fields used for locating records in the destination database.

Example Always export item number (pt_part) when modifying item master (pt_mstr) records because it is the unique key for the pt_mstr table.

Setting Up General Header-Detail Tables

Related tables such as those with header-detail or parent-child relationships must be updated in the destination database at the same time. For example, synchronizing sub-account–account validation detail (sbd_det) without synchronizing sub-account master (sb_mstr) would not be meaningful. And synchronizing only sub-account master would not provide sufficient information for the destination database to use the sub-account data.

Use this setup for synchronizing related tables:

- In the source database, use Synchronization Profile Maint to set up synchronization profiles with matching selection criteria for the header (parent) and detail (child) tables. For example:

Table	Selection Criteria in the Synchronization Profile
sb_mstr	sb_sub>= “1000”, sb_sub<= “5000”
sbd_det	sbd_sub>= “1000”, sbd_sub<= “5000”

- In the source database, use Export Specification Maint to create export specification records that associate the header and detail synchronization profiles with the destination database.
- In the destination database, use Import Specification Maint to set up import specification records with document types that match those in the header and detail export specification records.

Setting Up Addresses

You can synchronize data for the following types of MFG/PRO addresses:

- Customer
- Customer ship-to
- Supplier
- Supplier remit-to

Because of the way address data is stored in the MFG/PRO database, updating one of these records can affect up to three tables:

- The table for the specific address type (cm_mstr, vd_mstr)
- The table for general address information (ad_mstr)
- The table that stores system and user-defined address list types (ls_mstr)

Tip
Cross-references between ad_mstr records and cm_mstr records are stored in ls_mstr.

For each destination database, DataSync synchronizes related ad_mstr and ls_mstr records only when they are associated with customer or supplier records that are set up for synchronization.

See “Address List Type Table Setup” on page 81.

Note You can choose to synchronize address list data, but only for types that are not system generated.

To streamline synchronization, it is best to have one address profile for each type of synchronized address: supplier, customer, ship-to, and remit-to. This provides more flexibility in controlling the events that require synchronization for each address type and also the fields that need to be synchronized.

Customer and Address Master Table Setup

Use this setup for synchronizing customer and address records:

1. In the source database, use Synchronization Profile Maint to set up synchronization profiles for the cm_mstr and ad_mstr tables. The selection criteria need not be the same since DataSync automatically checks for association between customer and address records. However, it is recommended that the following selection criteria be used for the ad_mstr profile:

   ```
   ad_type = “customer”
   ```

You should also set the Required on Add field to Yes for the cm_site field in the cm_mstr payload. This prevents the creation of source documents with incomplete information that might fail to be loaded in the receiving database.

2 In the source database, use Export Specification Maint to create export specification records that associate the cm_mstr and ad_mstr synchronization profiles with the destination database.

3 In the destination database, use Import Specification Maint to set up import specification records with document types that match those in the cm_mstr and ad_mstr export specification records.

Customer Ship-to and Address Master Table Setup

Use this setup for synchronizing customer and ship-to address records:

1 In the source database, use Synchronization Profile Maint to set up synchronization profiles for the cm_mstr and ad_mstr tables. The selection criteria need not be the same since DataSync automatically checks for association between customer and address records. However, it is recommended that the following selection criteria be used for the ad_mstr profile:

```
ad_type = “ship-to”
```

2 In the source database, use Export Specification Maint to create export specification records that associate the cm_mstr and ad_mstr synchronization profiles with the destination database.

3 In the destination database, use Import Specification Maint to set up import specification records with the document types that match those in the cm_mstr and ad_mstr export specification records.

Supplier and Address Master Table Setup

Use this setup for synchronizing supplier and address records:

1. In the source database, use Synchronization Profile Maint to set up synchronization profiles for the vd_mstr and ad_mstr tables. The selection criteria need not be the same since DataSync automatically checks for association between supplier and address records. However, it is recommended that the following selection criteria be used for the ad_mstr profile:

   ```
   ad_type = “supplier”
   ```

   You should also set the Required on Add field to Yes for the vd_curr field in the vd_mstr payload. This prevents the creation of source documents with incomplete information that might fail to be loaded in the receiving database.

2. In the source database, use Export Specification Maint to create export specification records that associate the vd_mstr and ad_mstr synchronization profiles with the destination database.

3. In the destination database, use Import Specification Maint to set up import specification records with document types that match those in the vd_mstr and ad_mstr export specification records.

Supplier Remit-to and Address Master Table Setup

Use this setup for synchronizing supplier and supplier remit-to address records:

1. In the source database, use Synchronization Profile Maint to set up synchronization profiles for the vd_mstr and ad_mstr tables. The selection criteria need not be the same since DataSync automatically checks for association between supplier and address records. However, it is recommended that the following selection criteria be used for the ad_mstr profile:

   ```
   ad_type = “remit-to”
   ```

2. In the source database, use Export Specification Maint to create export specification records that associate the vd_mstr and ad_mstr synchronization profiles with the destination database.

3 In the destination database, use Import Specification Maint to set up import specification records with the document types that match those in the vd_mstr and ad_mstr export specification records

Address List Type Table Setup

Only list types that have been assigned by users can be synchronized directly. System-assigned address list types are not synchronized since these list type are created automatically when the associated address records are created.

Note System-assigned list types include slsprsn, company, customer, enduser, ship-to, supplier, remit-to, dock, c/s_bank, our_bank, po-ship, carrier, and engineer.

Use this setup for synchronizing address list type records:

1 In the source database, use Synchronization Profile Maint to set up synchronization profiles for the cm_mstr, vd_mstr, ad_mstr (ship-to, remit-to), and ls_mstr tables.

2 In the source database, use Export Specification Maint to create export specification records that associate the ls_mstr, cm_mstr, vd_mstr, and ad_mstr synchronization profiles with the destination database.

3 In the destination database, use Import Specification Maint to set up import specification records with the document types that match those in the ls_mstr, cm_mstr, vd_mstr, and ad_mstr export specification records

Setting Up Bill of Material Profiles

For each destination database, DataSync synchronizes only bill-of-material (BOM) records (bom_mstr) that are created, modified, or deleted using Product Structure Code Maint (13.1). Other options for creating bom_mstr records in the following programs are not supported at this time:

- Formula Code Maintenance (15.1)
- Service BOM Code Maintenance (11.19.1)

Use this setup for synchronizing BOM records:

1. In the source database, use Synchronization Profile Maint to set up synchronization profiles for the bom_mstr table. Use the following selection criteria for the bom_mstr profile:

   ```
   bom_formula = no and bom_fsm_type = “” and
   bom_batch = 0.0
   ```

2. In the source database, use Export Specification Maint to create export specification records that associate the bom_mstr synchronization profiles with the destination database.

3. In the destination database, use Import Specification Maint to set up import specification records with the document types that match those in the bom_mstr export specification records.

Setting Up Product Structure Profiles

For each destination database, DataSync synchronizes only product structure records (ps_mstr) that are created, modified, or deleted using Product Structure Maintenance (13.5). Other options for creating ps_mstr records in the following programs are not supported at this time:

- Formula Maintenance (15.5)
- Alternate Structure Maintenance (13.15)
- Co/By-Product Maintenance (15.12.1, 13.22.1)
- Process/Formula Maintenance (15.18)
- Configured Structure Maintenance (8.1)
- Service Structure Maintenance (11.19.5)

Use this setup for synchronizing product structure records:

1. In the source database, use Synchronization Profile Maint to set up synchronization profiles for the ps_mstr table. Use the following selection criteria for the ps_mstr profile:

   ```
   ps_ps_code <> “J” and ps_ps_code <> “A” and
   ps_qty_type = “”
   ```

2. In the source database, use Export Specification Maint to create export specification records that associate the ps_mstr synchronization profiles with the destination database.

3 In the destination database, use Import Specification Maint to set up import specification records with the document types that match those in the ps_mstr export specification records.

Setting Up Routing Detail Profiles

For each destination database, DataSync synchronizes only routing records (ro_det) that are created, modified, or deleted using Routing Maint (14.13.1). Other options for creating ro_det records in the following programs are not supported at this time:

- Routing Maintenance–Rate Based (14.13.2)
- Formula Maintenance (15.13)
- Process/Formula Maintenance (15.18)
- Service Routing Maintenance (11.19.17)

Use this setup for synchronizing routing records:

1 In the source database, use Synchronization Profile Maint to set up synchronization profiles for the ro_det table. Use the following selection criteria for the ro_det profile:

```
ro_fsm_type = “”
```

2 In the source database, use Export Specification Maint to create export specification records that associate the ro_det synchronization profiles with the destination database.

3 In the destination database, use Import Specification Maint to set up import specification records with the document types that match those in the ro_det export specification records.

Define Destination Lists

Destination lists are lists of Q/LinQ-registered external MFG/PRO destination databases used for publishing documents, sending documents, and deleting/archiving documents. Destination lists are single level; they cannot be nested. Destination lists are not used for importing documents.

Destination lists are optional. Without them, each trigger or export event sends one document to one database. Destination lists let you send each event to a list of external MFG/PRO databases. This saves disk space and

improves runtime performance because it creates only one copy of the documents for management and storage rather than one for each destination database.

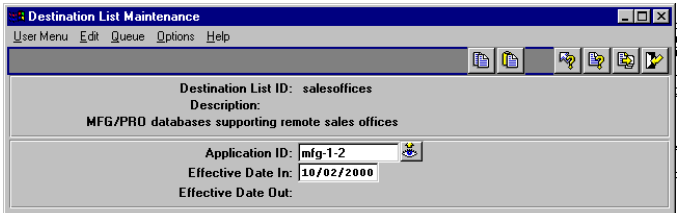
Publishing and sending to destination lists are independent tasks:

- Documents published to an individual database can be sent to that database or to any destination list to which the database belongs.
- Documents published to one list can be sent to individual databases or to another list where only the destinations common to both lists receive the document.

Note Documents can be published and sent to databases that are registered to use the stream or messaging APIs for communication. The messaging API can be used with destination lists for sending documents only on UNIX systems. The stream API can be used with destination lists for sending documents on both UNIX and Windows systems.

Use Destination List Maintenance (36.8.8) to define destination lists.

Fig. 5.9
Destination List Maintenance (36.8.8)



Destination List ID. Enter a unique name for the destination list.

Description. Enter up to 60 characters describing the destination list.

Application ID. Enter the name of an external MFG/PRO database to add to or update on the destination list. The database must be registered in Registered External Application.

Effective Date In. Enter the date when the database's membership in the distribution list becomes effective.

Effective Date Out. Enter the date when the database's membership in the distribution list expires.

Set Document Specifications

Entries in Register External Application include global settings applicable to all documents exported to and imported from an external application or MFG/PRO database. Each synchronization event creates a specific document for which export specifications must be set up in the source database and import specifications in the destination databases. Defining specifications for unique export documents supports flexibility in data synchronization.

See “Setting Up Document Specifications” in *External Interface Guide: Q/LinQ*.

For example:

- From a single database, export synchronization events for different tables to different destination databases.
- From a single table, export synchronization events for different fields to different destination databases.

Use Export Specification Maint (36.8.1.2; 36.8.2 in 9.0) and Import Specification Maint (36.8.1.3; 36.8.3 in 9.0) to identify particular documents and to set document-specific parameter values for exporting and importing.

Document-specific values can be set for interface control parameters, data mapping parameters, and messaging parameters. For export documents, data content parameters can be set as well.

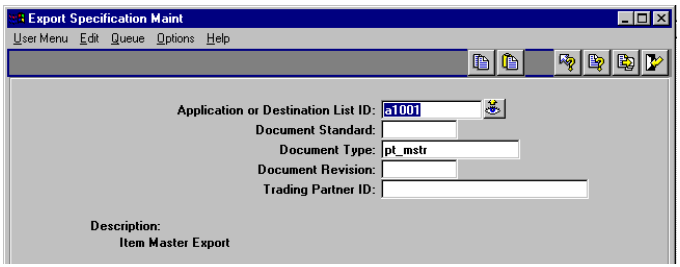
Register Export Specifications

Use Export Specification Maint to:

- Create an export specification for each synchronization document type to be exported to each database.
- Associate a synchronization profile with each synchronization document type.
- Associate a synchronization profile with each registered external MFG/PRO database or destination list.

Accept the Q/LinQ defaults except where noted.

Fig. 5.10
Export Specification Maint (36.8.1.2; 36.8.2 in 9.0)



Application or Destination List ID. Enter one of the following:

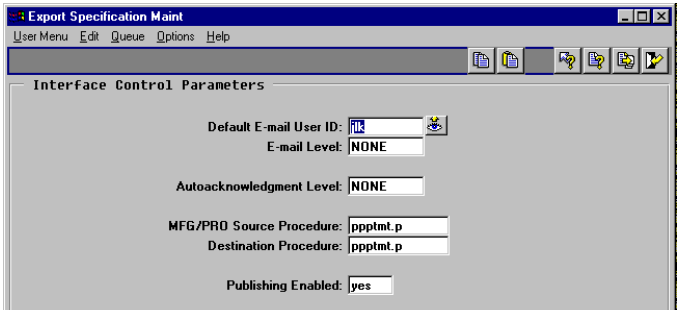
- The name of an external MFG/PRO database as it is defined in Register External Application (36.8.1.1; 36.8.1 in 9.0)
- The name of a destination list as defined in Destination List Maintenance (36.8.8)

Document Standard. Enter a user-defined name such as sync_docs so that synchronization activity and documents can be easily segregated from other Q/LinQ documents and activities. This field is validated against generalized codes defined for field esp_doc_std.

Document Type. Enter a user-defined name for the type of data that is being synchronized. Use names that reflect the type of data, such as pt_part for item numbers, to facilitate browsing, reporting, and tracking specific data elements.

Document Revision and Trading Partner ID can be left blank. If they are used, Document Standard, Document Type, Document Revision, and Trading Partner ID must be a unique combination of values.

Fig. 5.11
Export Specification Maint, Interface Control Parameters



Default E-mail User ID, E-mail Level. Leave these fields blank to accept the defaults specified for the databases in Register External Application.

Publishing Enabled. Enter Yes when the export specification is ready to be used by Q/LinQ. Enter No for Q/LinQ to ignore this specification.

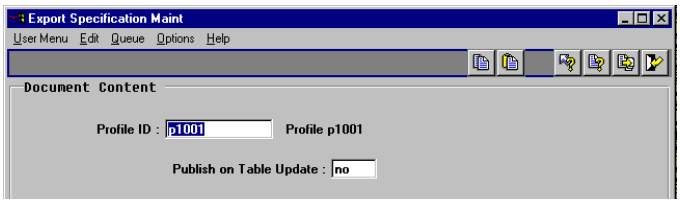


Fig. 5.12 Export Specification Maint, Document Content

Profile ID. Enter the name of a synchronization profile as it is defined in Synchronization Profile Maint (36.8.22.1). Only one profile can be associated with an export specification.

Publish on Table Update. Enter Yes to create export documents for the specified profile whenever a record in the associated table is updated. This is event-driven, automatic data exporting.

For batch-only data synchronization, enter No and use Synchronization Mass Export (36.8.22.8) to create export documents for a specified profile.

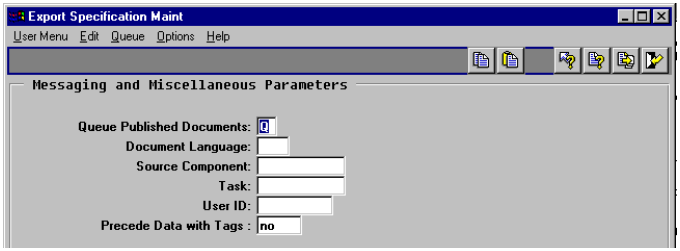


Fig. 5.13 Export Specification Maint, Messaging and Miscellaneous Parameters

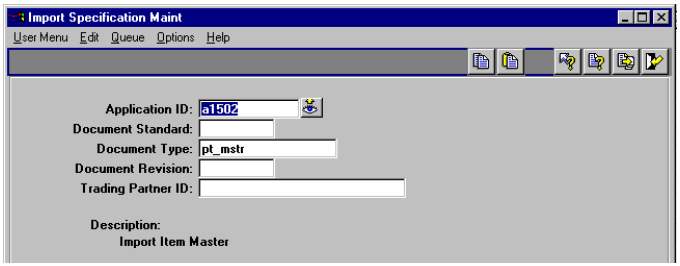
Precede Data with Tags. Enter Yes to embed document control tags in front of the actual data when using the stream or messaging APIs to send documents to external databases. Control tags are always included when sending documents to a file.

Register Import Specifications

Use Import Specification Maint to register each inbound synchronization document type.

Accept the Q/LinQ defaults except where noted.

Fig. 5.14
Import Specification Maint (36.8.1.3; 36.8.3 in 9.0)



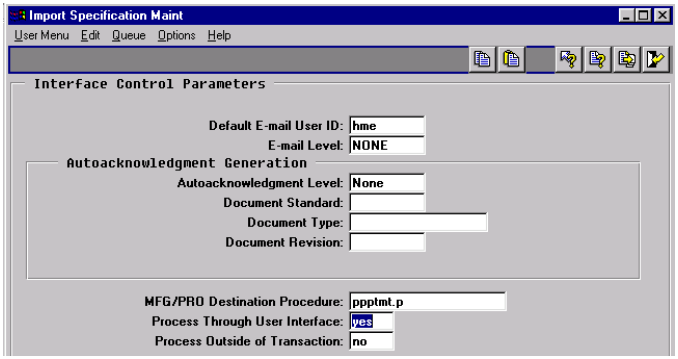
Application ID. Enter the name of an external MFG/PRO database as it is defined in Register External Application (36.8.1.1; 36.8.1 in 9.0).

Document Standard. Enter a user-defined name such as sync_docs so that synchronization activity and documents can be easily segregated from other Q/LinQ documents and activities.

Document Type. Enter a user-defined name for the type of data that is being synchronized. Use names that reflect the type of data, such as pt_part for item numbers, to facilitate browsing, reporting, and tracking specific data elements.

Document Revision and Trading Partner ID can be left blank. If they are used, Document Standard, Document Type, Document Revision, and Trading Partner ID must be a unique combination of values.

Fig. 5.15
Import Specification Maint, Interface Control Parameters



In the Interface Control Parameters frame, set up incoming processing and e-mail notification parameters.

Default E-mail User ID, E-mail Level. Leave these fields blank to accept the defaults specified for the database in Register External Application.

MFG/PRO Destination Procedure. Enter the name of the MFG/PRO program to call to process the data from the imported synchronization document as an MFG/PRO transaction.

Process Through User Interface. Enter Yes to invoke the destination procedure through the CIM Interface. Yes is required for DataSync.

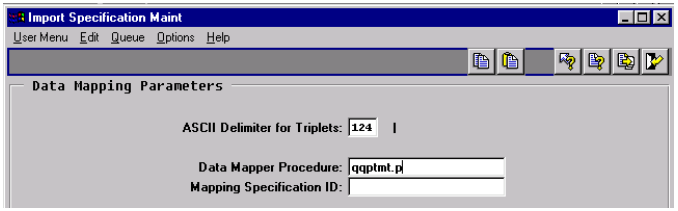


Fig. 5.16 Import Specification Maint, Data Mapping Parameters

In the Data Mapping Parameters frame, specify the DataSync data mapping procedure from Table 5.1. Select the procedure that represents both the destination procedure and the table for the imported data type.

Table 5.1 Data Mapping Programs

Destination Procedure	Supported Tables	Mapping Procedure Name
adcsmt.p	ad_mstr	qqadmp.p
	cm_mstr	qqcmmp.p
adlsmt.p	ls_mstr	qqlsmp.p
adrtmt.p	ad_mstr	qqadmp.p
	ls_mstr	qqlsmp.p
adstmt.p	ad_mstr	qqadmp.p
	cm_mstr	qqcmmp.p
advnmt.p	vd_mstr	qqvdmp.p
	ad_mstr	qqadmp.p
	ls_mstr	qqlsmp.p
bmmamt.p	bom_mstr	qqbmmp.p

Table 5.1 — *Data Mapping Programs* — (Page 1 of 2)

Destination Procedure	Supported Tables	Mapping Procedure Name
bmpsmt.p	ps_mstr	qqbpsmt.p
csmsmt.p	cs_mstr	qqcsmp.p
fcfsmt01.p	fcs_sum	qqfcsmp.p
glenmt.p	en_mstr	qqenmp.p
glacmt.p	ac_mstr	qqacmp.p
glcalmt.p	glc_cal	qqglcmp.p
glsbmt.p	sb_mstr	qqsbmp.p
	sbd_det	qqsbdmp.p
glccmt.p	cc_mstr	qqccmp.p
	ccd1_det	qqccd1mp.p
	ccd2_det	qqccd2mp.p
gpcmmt.p	cd_det	qqcdmp.p
icsimt.p	si_mstr	qqsimp.p
icstmt.p	is_mstr isd_det	qqismp.p qqisdmp.p
mccumt.p	cu_mstr	qqcump.p
mcexrmt.p	exr_rate	mcexrmt.p
mgcodemt.p	code_mstr	qqcodemp.p
ppacln.p	anl_det	qqanlmp.p
ppacmt.p	an_mstr	qqanmp.p
ppacrl.p	ans_det	qqansmp.p
ppcpmt.p	cp_mstr	qqcpmp.p
ppplmt.p	pl_mstr	qqplmp.p
pppcmt.p	pc_mstr	qqpcmp.p
pppimpt.p	pi_mstr	qqpimp.p
	pid_det	qqpidmp.p
ppptmt.p	pt_mstr	qqptmp.p
pppummt.p	um_mstr	qqummp.p
ppvpmt.p	vp_mstr	qqvpmp.p
rwdpmt.p	dpt_mstr	qqdptmp.p
rwromt.p	ro_det	qqromp.p
rwwcmt.p	wc_mstr	qqwcmp.p

Table 5.1 — *Data Mapping Programs* — (Page 2 of 2)

Chapter 6

Synchronizing Data

This chapter describes exporting, importing, and monitoring data exchange to synchronize multiple databases.

Once the essential installation and setup tasks are complete, use Data Synchronization (DataSync) to synchronize data among multiple, distributed MFG/PRO databases.

Publishing Documents

DataSync publishes synchronization documents automatically through schema triggers or manually through mass export programs.

See “Register Export Specifications” on page 85.

With automatic publication, DataSync publishes a synchronization document each time the table specified in a synchronization profile is updated. To publish automatically, complete this setup in Export Specification Maint (36.8.1.2; 36.8.2 in 9.0):

- Associate a synchronization profile with a document type and a destination database.
- In the Document Content frame, set Publish on Table Update to Yes for the selected profile.

Manual publication is a batch approach to creating synchronization documents. This approach is particularly useful for publishing large numbers of records during initial synchronization of multiple databases. Use Synchronize Mass Export (36.8.22.8) to publish the documents associated with a selected profile for selected destination databases.

Sending and Receiving Documents

Use the Q/LinQ communication APIs (stream, messaging) or ASCII files to move synchronization documents between MFG/PRO databases. The exchanges can be initiated interactively or through batch scripts.

See these topics in the chapter on “Managing Documents” in *External Interface Guide: Q/LinQ* for program details:

- Send Export Document Sessions
- Using Send Export Documents
- Importing from External Applications
- Receiving Import Documents

Exchanging Documents Through APIs

Exchanging documents through the stream and messaging APIs is the recommended method for data synchronization.

Important On Windows system, the messaging API is limited to a single session. If you are using destination lists for sending documents on Windows systems, use the stream API method.

Note When using the messaging API, start the listener process first. It runs as a server waiting for a caller to make contact.

See “Messaging API” on page 71.

Use Send Export Documents (36.8.7) to export documents to the destination database:

- For the Send To radio buttons, select Application.
- In Application ID, enter the application ID for the source and destination database combination as defined in Register External Application. The stream or messaging API parameters are also defined for the application ID in Register External Application.
- In the second frame, specify the ranges defining the documents to export.

Use Receive Import Documents (36.8.9) to import documents from the source database.

- For the Import From radio buttons, select Application.
- In Application ID, enter the application ID for the source and destination database combination.

Exchanging Documents Through Files

Exchanging DataSync documents through ASCII files is a manual process. There are no Q/LinQ mechanisms for automatically transferring files between locations (hosts, directories) or for continuously polling directories for files.

Note User-written polling procedures can be created outside of Q/LinQ or using the Q/LinQ stream API to read files continuously into Q/LinQ.

Use Send Export Documents (36.8.7) to export synchronization documents to ASCII files:

- For the Send To radio buttons, select File.
- In File Name, enter the output path.
- In the second frame, specify the application ID for the source and destination database combination as defined in Register External Application, as well as the ranges defining the documents to export.

Use Receive Import Documents to load ASCII files into the import queue of the destination database:

- For the Import From radio buttons, select File.
- In Source File Name, enter the path to the ASCII file of synchronization documents.

Mass Document Export

Use Synchronization Mass Export (36.8.22.8) to manually create large numbers of synchronization documents; for example, during system implementation or initial database synchronization. This program uses batch processing rather than database event triggers to create the documents specified in a synchronization profile.

- In Synchronization Profile ID and To, enter a range of profile names. For a record from a table specified in a profile to be included in the mass export, any field that is marked as Required for Add must have a value.
- In Application or Destination List ID and To, enter a range of destinations to receive the mass exported documents.
- In List documents on Control Report, enter Yes to generate a report with document lines as well as totals.
- In Publish Documents, enter Yes to publish the documents; enter No to publish only the report.

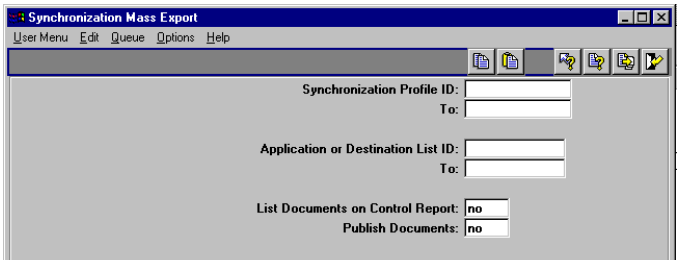


Fig. 6.1
Synchronization Mass Export (36.8.22.8)

Processing Documents

Use Process Import Documents (36.8.10) to map the synchronization data from the received documents to the appropriate format and to update the destination database.

See “Register Import Specifications” on page 88.

Mapping and processing can be initiated interactively or through a batch script. See “Mapping and Processing Import Documents” in *External Interface Guide: Q/LinQ* for program details.

To increase processing throughput, run multiple, concurrent sessions of Process Import Documents. It is best to have each session processing different document types and document ranges since concurrent sessions do not preserve the chronological order of synchronization actions.

Tracking Documents

To facilitate document tracking, create unique codes during setup:

- Use Register External Application (36.8.1.1; 36.8.1 in 9.0) to specify a unique application ID for each data synchronization database pair.

See page 67.

- Use Export Specification Maint (36.8.1.2; 36.8.2 in 9.0) to specify a unique document standard or document type for each synchronization document.

See page 85.

See “Managing Documents” in *External Interface Guide: Q/LinQ*.

With these unique definitions in place, use the standard Q/LinQ tools to monitor and report the status of synchronization activity by database or by document:

- Export/Import Document Query (36.8.16)
- Export/Import Document Report (36.8.17).

For documents exported to destination lists, Export/Import Document Query and Export/Import Document Report display export log information for each destination.

Correcting and Reprocessing Documents

Occasionally a receiving database will fail to process a synchronization document as a transaction; for example, if all prerequisite codes are not synchronized between the source and destination databases.

For CIM documents, use Debug CIM Document (36.8.11) to interactively process the document to more clearly identify the error source.

Note In extreme cases only, use Dump Export/Import Doc for Edit (36.8.13) to manually correct the data inside the destination database and Reload Edited Export/Import Doc (36.8.14) to reload it for processing.

Deleting Documents

See “Deleting or Archiving Documents” in *External Interface Guide: Q/LinQ*.

Since Q/LinQ does not automatically delete completed export or import documents, the number of synchronization documents grows quickly in high-volume environments. Use Export/Import Doc Delete/Archive (36.8.23) to remove completed documents from the export and import queues at least once a day. Cleaning up the queues reclaims storage space and enhances Q/LinQ performance. Export documents can be chosen by destination list as well as by application.

For documents exported to destination lists, Export/Import Doc Delete/Archive deletes export log information for each destination.

Managing Sessions

Tracking Sessions

Use Interface Session Monitor (36.8.5) to pause, resume, cancel, or view the status of a session.

See “Monitoring Q/LinQ Sessions” in *External Interface Guide: Q/LinQ*.

For sessions exporting to destination lists, the connections to all databases in the list are controlled through one primary session record. Only the primary session record can be updated directly to pause, resume, cancel, or delete the session. Each discrete connection has its own session master record in the database; these are displayed for inquiry only.

Recovering from Communication Errors

When Q/LinQ encounters a communication error when sending a document to a single application or MFG/PRO database, Q/LinQ attempts to reconnect to the destination database and to resend the document.

If a communication error occurs when sending a document to a destination list, Q/LinQ logs the error and goes on to the next destination database rather than attempting to reconnect and resend to the destination database having communication problems. In this way, an error affecting one destination does not delay the delivery of a document to the other destinations.

DataSync users can take advantage of the reconnect and resend functionality by publishing a document to a destination list and then sending the document to each of the destination databases one at a time in separate Q/LinQ sessions.

Use the Interface Session Monitor to pause, resume, or cancel the export session at any time. If the session is paused or canceled, a message displays in the Send Export Documents window. If a session is canceled (either through Interface Session Monitor, pressing End, or a system failure), manually delete the session record to release the external application so that other Q/LinQ sessions can connect to it. Delete session records using the delete option in Interface Session Monitor.

Restarting Sessions

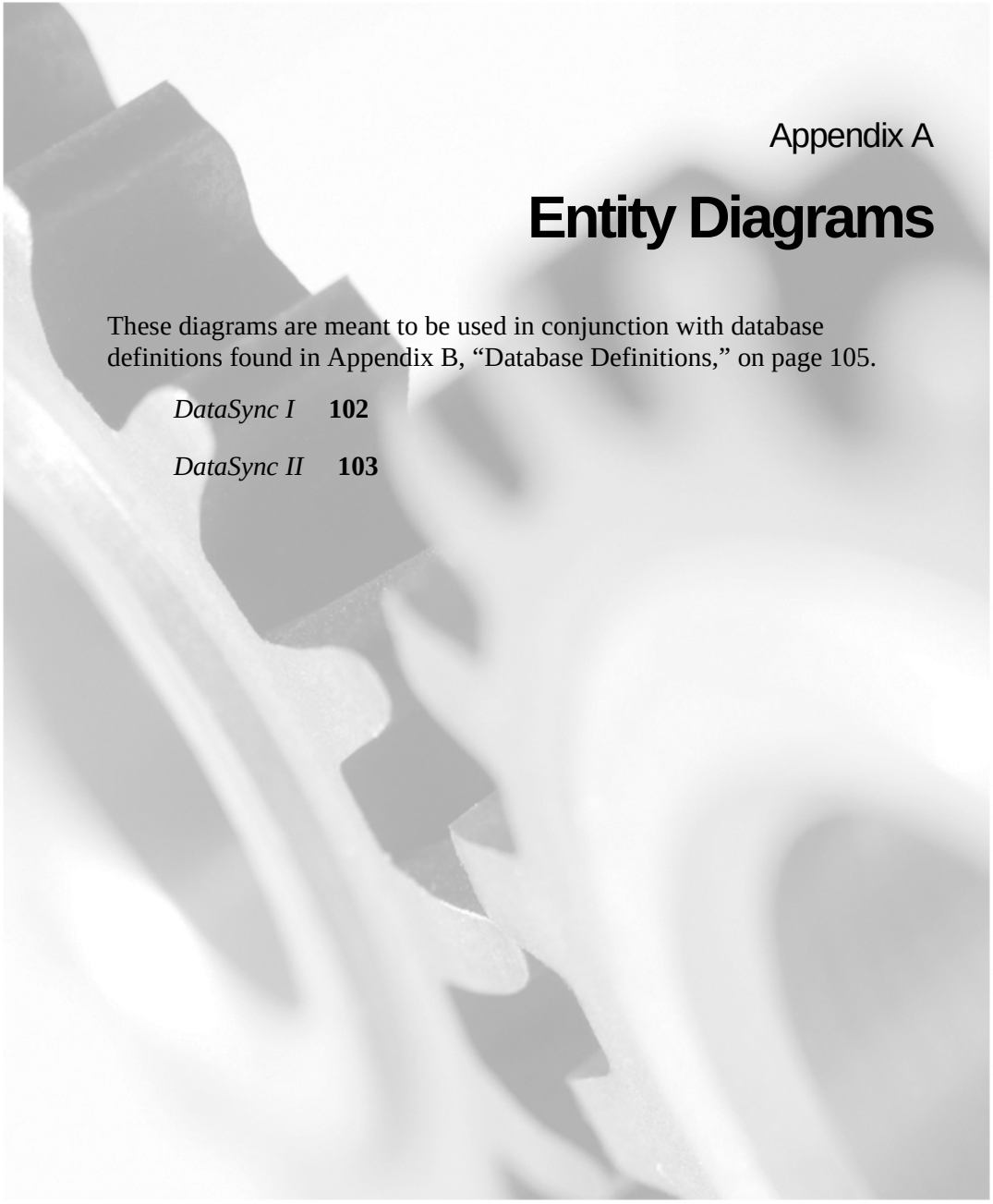
See “Starting and Restarting Q/LinQ” in *External Interface Guide: Q/LinQ*.

After severed communication caused by network problems or user interrupts (Ctrl+C) is restored, the system administrator can restart the MFG/PRO databases. Any documents that were being sent or received at the time of the communication loss remain intact in their source database. Each document has an error status indicating that the sending process was interrupted. The documents can be resent once communication is restored and the databases are restarted.

Section 3

User Reference

The appendices in this section cover reference material for Data Synchronization.

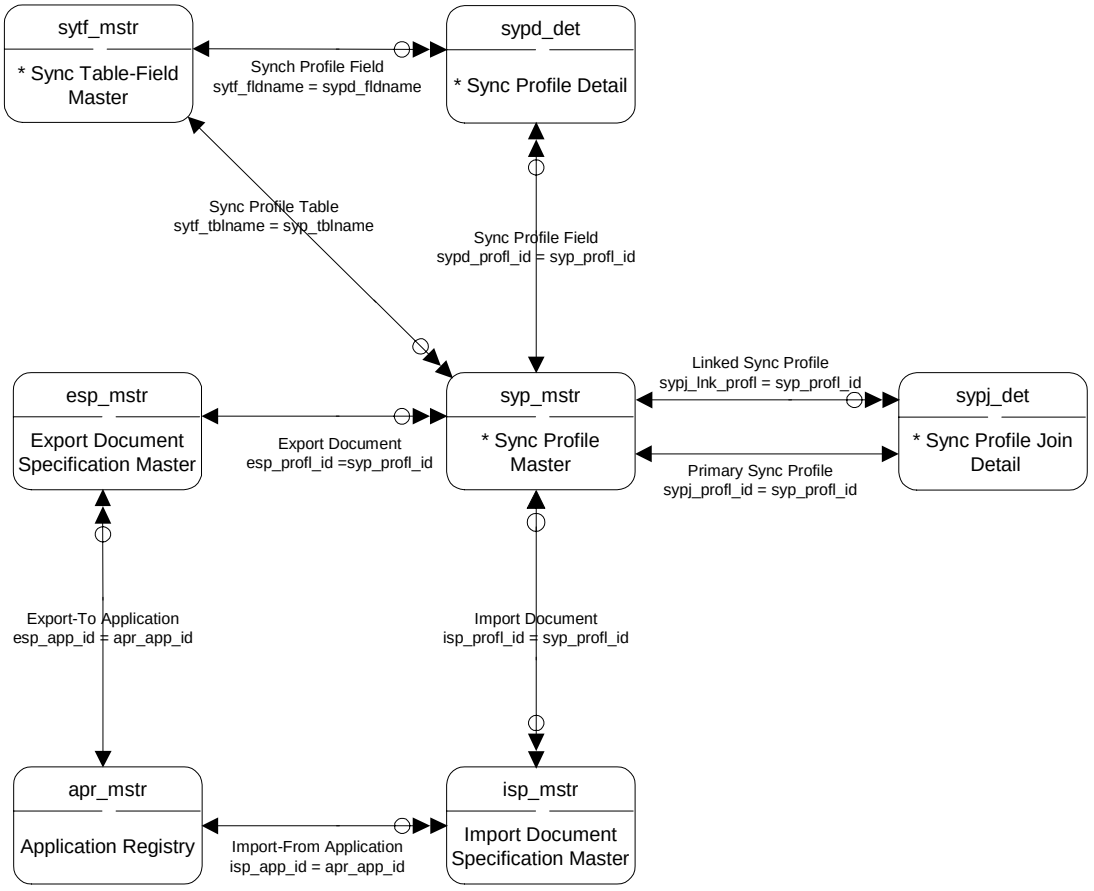


Appendix A

Entity Diagrams

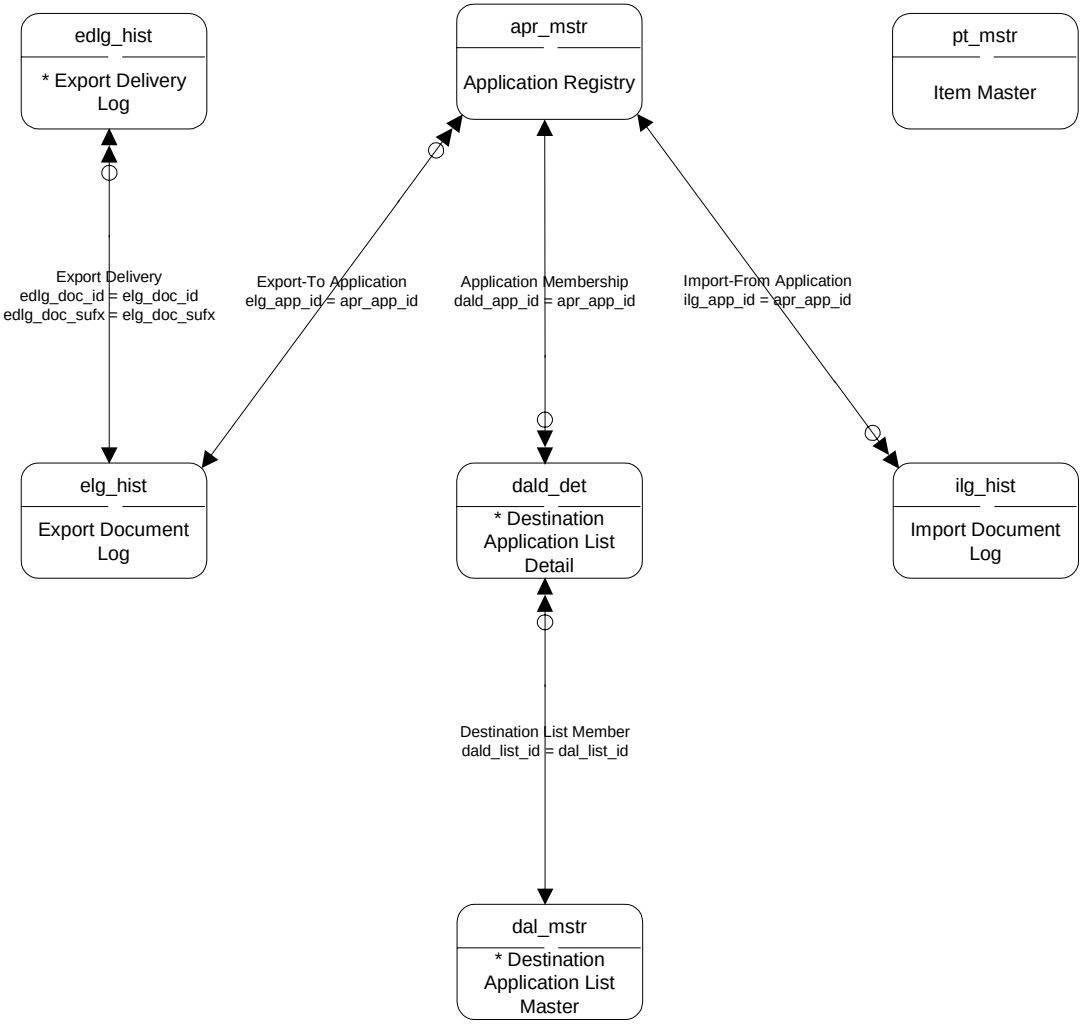
These diagrams are meant to be used in conjunction with database definitions found in Appendix B, “Database Definitions,” on page 105.

DataSync I



* Included in dsy side database

DataSync II



* Included in dsy side database

Appendix B

Database Definitions

This appendix lists the tables in a new side database for DataSync. Since this is a new database, there are no changed or deleted fields, tables, or indexes.

Database tables are listed alphabetically with the following information:

abd_det Asset Book Detail

Field Name	Field Label	Column Label	Format	Dec
abd_active	Active	Act	yes/no	
abd_asset	Asset		x(12)	
abd_bonus	Bonus Percent	Bonus %	->>9.9<%	10

- *Field Name*. The name of the field.
- *Field Label*. The label as it appears on screens.
- *Column Label*. The label that appears on reports.
- *Format*. How, and what kind of, data can be displayed.
- *Dec*. The maximum number of decimal places that can be stored.

Some fields in the database are not currently used. These fields are either:

- User definable for custom programming
- Reserved for future use by QAD

Each database table has at least one index. By default, Progress sorts and retrieves records using the primary index, which is indicated by an asterisk (*). Indexes have the following attributes.

	Index Name	Uni	Field Name	Asc	Abbr
	abd_active	yes	abd_active	yes	no
			abd_asset	yes	no
			abd_book	yes	no
*	abd_asset	yes	abd_asset	yes	no
			abd_book	yes	no

- *Primary Index*. Indicated with an asterisk. The most frequently used index. Each table has one and only one primary index. Progress uses the primary index when retrieving records or ordering records for a list (like a report) if you do not specify another index. The primary index reflects the most common order, or the most natural order, by which records are sorted.
- *Index Name*. The name of the index.
- *Uni (Unique)*. Yes indicates only one record in the table can have a particular index value.
- *Field Name*. Each index has one or more field components.
- *Asc (Ascending)*. Yes indicates that records are ordered and accessed by ascending field values.

- *Abbr (Abbreviated)*. For character data fields, a sort option that examines partial records. Files with abbreviated indexes sort faster but require more disk space.

The following symbols and conventions are used in this appendix:

Symbol	Meaning
*	Primary Index
!	Shows where a column label wraps to next line

Convention for Designating Fields	Meaning
[x]	Extent of array field
<prefix>__user<number>	User field (ac__user1)
<prefix>__dec<number>	User decimal data field (ac__dec01)
<prefix>__chr<number>	User character field (ac__chr01)
<prefix>__qad<number>	QAD reserved field (ac__qad01)
<prefix>_x<number>	Obsolete field (ac_xctr)

dald_det Destination Application List Detail

Field Name	Label	Col-Label	Format	Dec
dald_app_id	Application ID		x(12)	
dald_eff_dt_in	Effective Date In		99/99/99	
dald_eff_dt_out	Effective Date Out		99/99/99	
dald_list_id	Destination List ID		x(12)	
dald_mod_date	Mod Date		99/99/99	
dald_mod_userid	User ID		x(8)	
dald_user1	Ufld1		x(8)	
dald_user2	Ufld2		x(8)	
dald__chr01			x(8)	
dald__chr02			x(8)	
dald__dec01			->>>,>>>,>>9.99<	10
dald__dec02			->>>,>>>,>>9.99<	10
dald__dte01			99/99/99	
dald__dte02			99/99/99	
dald__int01			->>>,>>>,>>9	
dald__int02			->>>,>>>,>>9	
dald__log01			yes/no	
dald__log02			yes/no	
dald__qadc01			x(8)	
dald__qadc02			x(8)	
dald__qadc03			x(8)	
dald__qadc04			x(8)	
dald__qadd01			->>>,>>>,>>9.99<	10
dald__qadd02			->>>,>>>,>>9.99<	10
dald__qadi01			->>>,>>>,>>9	
dald__qadi02			->>>,>>>,>>9	
dald__qadl01			yes/no	
dald__qadl02			yes/no	
dald__qadt01			99/99/99	
dald__qadt02			99/99/99	

	Index-Name	Uni	Field-Name	Asc	Abbr
*	dald_listid_appid_dt in	yes	dald_list_id	yes	no
			dald_app_id	yes	no
			dald_eff_dt_in	yes	no

dal_mstr Destination Application List Master

Field Name	Label	Col-Label	Format	Dec
dal_list_desc	Description		x(60)	
dal_list_id	Destination List ID		x(12)	
dal_mod_date	Mod Date		99/99/99	
dal_mod_userid	User ID		x(8)	
dal_user1	Ufld1		x(8)	
dal_user2	Ufld2		x(8)	
dal__chr01			x(8)	
dal__chr02			x(8)	
dal__dec01			->>>,>>>,>>9.99<	10
dal__dec02			->>>,>>>,>>9.99<	10
dal__dte01			99/99/99	
dal__dte02			99/99/99	
dal__int01			->>>,>>>,>>9	
dal__int02			->>>,>>>,>>9	
dal__log01			yes/no	
dal__log02			yes/no	
dal__qadc01			x(8)	
dal__qadc02			x(8)	
dal__qadc03			x(8)	
dal__qadc04			x(8)	
dal__qadd01			->>>,>>>,>>9.99<	10
dal__qadd02			->>>,>>>,>>9.99<	10
dal__qadi01			->>>,>>>,>>9	
dal__qadi02			->>>,>>>,>>9	
dal__qadl01			yes/no	
dal__qadl02			yes/no	
dal__qadt01			99/99/99	
dal__qadt02			99/99/99	

	Index-Name	Uni	Field-Name	Asc	Abbr
*	dal_list_id	yes	dal_list_id	yes	no

edlg_hist Export Delivery Log

Field Name	Label	Col-Label	Format	Dec
edlg_app_id	Application ID		x(12)	
edlg_date_sent	Date Sent		99/99/99	
edlg_doc_id	Document ID		>>>>>>>9	
edlg_doc_sufx	Document Suffix		>>	
edlg_err_stat	Error Status		x(1)	
edlg_mod_date	Mod Date		99/99/99	
edlg_mod_userid	User ID		x(8)	
edlg_time_sent	Time Sent		x(8)	

Field Name	Label	Col-Label	Format	Dec
edlg_user1	Ufld1		x(8)	
edlg_user2	Ufld2		x(8)	
edlg__chr01			x(8)	
edlg__chr02			x(8)	
edlg__dec01			->>>,>>>,>>9.99<	10
edlg__dec02			->>>,>>>,>>9.99<	10
edlg__dte01			99/99/99	
edlg__dte02			99/99/99	
edlg__int01			->>>,>>>,>>9	
edlg__int02			->>>,>>>,>>9	
edlg__log01			yes/no	
edlg__log02			yes/no	
edlg__qadc01			x(8)	
edlg__qadc02			x(8)	
edlg__qadc03			x(8)	
edlg__qadc04			x(8)	
edlg__qadd01			->>>,>>>,>>9.99<	10
edlg__qadd02			->>>,>>>,>>9.99<	10
edlg__qadi01			->>>,>>>,>>9	
edlg__qadi02			->>>,>>>,>>9	
edlg__qadl01			yes/no	
edlg__qadl02			yes/no	
edlg__qadt01			99/99/99	
edlg__qadt02			99/99/99	

	Index-Name	Uni	Field-Name	Asc	Abbr
*	edlg_docid_docsufx_appid	yes	edlg_doc_id	yes	no
			edlg_doc_sufx	yes	no
			edlg_app_id	yes	no

sypd_det Sync Profile Detail

Field Name	Label	Col-Label	Format	Dec
sypd_fldname	Field Name		x(21)	
sypd_mod_date	Mod Date		99/99/99	
sypd_mod_userid	User ID		x(8)	
sypd_profl_id	Sync Profile ID		x(16)	
sypd_reqd_add	Required on Add		yes/no	
sypd_reqd_chgdel	Required on Change or Delete		yes/no	
sypd_seq	Sequence		>>9	
sypd_user1	Ufld1		x(8)	
sypd_user2	Ufld2		x(8)	
sypd__chr01			x(8)	

Field Name	Label	Col-Label	Format	Dec
sypd__chr02			x(8)	
sypd__dec01			->>>,>>>,>>9.99<	10
sypd__dec02			->>>,>>>,>>9.99<	10
sypd__dte01			99/99/99	
sypd__dte02			99/99/99	
sypd__int01			->>>,>>>,>>9	
sypd__int02			->>>,>>>,>>9	
sypd__log01			yes/no	
sypd__log02			yes/no	
sypd__qadc01			x(8)	
sypd__qadc02			x(8)	
sypd__qadc03			x(8)	
sypd__qadc04			x(8)	
sypd__qadd01			->>>,>>>,>>9.99<	10
sypd__qadd02			->>>,>>>,>>9.99<	10
sypd__qadi01			->>>,>>>,>>9	
sypd__qadi02			->>>,>>>,>>9	
sypd__qadl01			yes/no	
sypd__qadl02			yes/no	
sypd__qadt01			99/99/99	
sypd__qadt02			99/99/99	

	Index-Name	Uni	Field-Name	Asc	Abbr
*	sypd_proflid_fldname	yes	sypd_profl_id	yes	no
			sypd_fldname	yes	no
	sypd_proflid_seq	no	sypd_profl_id	yes	no
			sypd_seq	yes	no

sypj_det

Sync Profile Join Detail

Field Name	Label	Col-Label	Format	Dec
sypj_join_crit[4]	Join Criteria		x(255)	
sypj_join_profl	Joined Sync Profile ID		x(16)	
sypj_mod_date	Mod Date		99/99/99	
sypj_mod_userid	User ID		x(8)	
sypj_profl_id	Sync Profile ID		x(16)	
sypj_relation	Relationship		x(1)	
sypj_user1	Ufld1		x(8)	
sypj_user2	Ufld2		x(8)	
sypj__chr01			x(8)	
sypj__chr02			x(8)	
sypj__dec01			->>>,>>>,>>9.99<	10
sypj__dec02			->>>,>>>,>>9.99	10
sypj__dte01			99/99/99	

Field Name	Label	Col-Label	Format	Dec
sypj__dte02			99/99/99	
sypj__int01			->>>,>>>,>>9	
sypj__int02			->>>,>>>,>>9	
sypj__log01			yes/no	
sypj__log02			yes/no	
sypj__qadc01			x(8)	
sypj__qadc02			x(8)	
sypj__qadc03			x(8)	
sypj__qadc04			x(8)	
sypj__qadd01			->>>,>>>,>>9.99<	10
sypj__qadd02			->>>,>>>,>>9.99<	10
sypj__qadi01			->>>,>>>,>>9	
sypj__qadi02			->>>,>>>,>>9	
sypj__qadl01			yes/no	
sypj__qadl02			yes/no	
sypj__qadt01			99/99/99	
sypj__qadt02			99/99/99	

	Index-Name	Uni	Field-Name	Asc	Abbr
	join_profl_rel	yes	sypj_join_profl	yes	no
			sypj_profl_id	yes	no
			sypj_relation	yes	no
*	profl_join_rel	yes	sypj_profl_id	yes	no
			sypj_join_profl	yes	no
			sypj_relation	yes	no

syp_mstr Sync Profile Master

Field Name	Label	Col-Label	Format	Dec
syp_add_as_chg	Format as Change		yes/no	
syp_dbname	Database Name		x(8)	
syp_del_as_chg	Format as Change		yes/no	
syp_exp_add	Export Add		yes/no	
syp_exp_chg	Export Change		yes/no	
syp_exp_del	Export Delete		yes/no	
syp_exp_dump	Export As Record Dump		yes/no	
syp_flt_crit[4]	Filter Criteria		x(255)	
syp_mod_date	Mod Date		99/99/99	
syp_mod_userid	User ID		x(8)	
syp_profl_desc	Description		x(40)	
syp_profl_id	Sync Profile ID		x(16)	
syp_publ_proc	Filter Procedure Name		x(16)	
syp_tblname	Table Name		x(16)	
syp_user1	Ufld1		x(8)	

Field Name	Label	Col-Label	Format	Dec
syp_user2	Ufld2		x(8)	
syp__chr01			x(8)	
syp__chr02			x(8)	
syp__dec01			->>>,>>>,>>9.99<	10
syp__dec02			->>>,>>>,>>9.99	10
syp__dte01			99/99/99	
syp__dte02			99/99/99	
syp__int01			->>>,>>>,>>9	
syp__int02			->>>,>>>,>>9	
syp__log01			yes/no	
syp__log02			yes/no	
syp__qadc01			x(8)	
syp__qadc02			x(8)	
syp__qadc03			x(8)	
syp__qadc04			x(8)	
syp__qadd01			->>>,>>>,>>9.99<	10
syp__qadd02			->>>,>>>,>>9.99<	10
syp__qadi01			->>>,>>>,>>9	
syp__qadi02			->>>,>>>,>>9	
syp__qadl01			yes/no	
syp__qadl02			yes/no	
syp__qadt01			99/99/99	
syp__qadt02			99/99/99	

	Index-Name	Uni	Field-Name	Asc	Abbr
*	syp_profl_id	yes	syp_profl_id	yes	no
	syp_tblname	no	syp_tblname	yes	no

sytf_mstr

Synchronization Table – Field Master

Field Name	Label	Col-Label	Format	Dec
sytf_fldname	Field Name		x(16)	
sytf_mod_date	Mod Date		99/99/99	
sytf_mod_userid	User ID		x(8)	
sytf_reqd_add	Required on Add		yes/no	
sytf_reqd_chgdel	Required in Change-Delete		yes/no	
sytf_tblname	Table Name		x(16)	
sytf_user1	Ufld1		x(8)	
sytf_user2	Ufld2		x(8)	
sytf__chr01			x(8)	
sytf__chr02			x(8)	
sytf__dec01			->>>,>>>,>>9.99<	10
sytf__dec02			->>>,>>>,>>9.99<	10

Field Name	Label	Col-Label	Format	Dec
sytf__dte01			99/99/99	
sytf__dte02			99/99/99	
sytf__int01			->>>,>>>,>>9	
sytf__int02			->>>,>>>,>>9	
sytf__log01			yes/no	
sytf__log02			yes/no	
sytf__qadc01			x(8)	
sytf__qadc02			x(8)	
sytf__qadc03			x(8)	
sytf__qadc04			x(8)	
sytf__qadd01			->>>,>>>,>>9.99<	10
sytf__qadd02			->>>,>>>,>>9.99<	10
sytf__qadi01			->>>,>>>,>>9	
sytf__qadi02			->>>,>>>,>>9	
sytf__qadl01			yes/no	
sytf__qadl02			yes/no	
sytf__qadt01			99/99/99	
sytf__qadt02			99/99/99	

	Index-Name	Uni	Field-Name	Asc	Abbr
	sytf_fldname	no	sytf_fldname	yes	no
*	sytf_tblname_fldname	yes	sytf_tblname	yes	no
			sytf_fldname	yes	no

Glossary

Filter Criteria. A conditional clause in a synchronization profile that determines which records from a table to synchronize with other MFG/PRO databases.

Payload. The data fields specified in a synchronization profile whose values are included in a synchronization document.

Schema Trigger. Schema triggers are Progress `.p` procedures added, through the Data Dictionary, to the database schema. Schema triggers always execute when a specified event occurs.

Synchronization Document. Each DataSync document represents a single add, change, or delete action for a specific master table record.

Synchronization Profile. Synchronization profiles specify which data to synchronize among databases (tables, fields) and which data changes to synchronize (add, change, delete).

Index