ProSoft®
TECHNOLOGY

Where Automation Connects.

Configurator (SI)

Account Administrator (AA)

SI and AA: Choose Site Code

SI or AA: Create Site Record

SI: Build Product (PRDC) Table with Blend code assignments

SI: Complete Blend table entries in PLC data files

AA: Create up to 4 Name and Address (NADR), Create Site Reference (STRF)

AA: Populate remainder of database

TermLinx

TLX-DBM

TermLinx Database Manager

Terminal Management System

August 11, 2009

DATABASE MANAGER MANUAL

Your Feedback Please

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Function		Section to Read	Details
Introduction (Must Do)	→	Product Specifications (page 7)	This section gives the customer an overview of the TermLinx Terminal Management System, including features and benefits as well as functional specifications.
Configuration (Must Do)	→	Using the TermLinx Database Wizard (page 101) Using the TermLinx Database Manager (page 13)	These sections describe how to set up and maintain the TermLinx database.
Reference	→	Reference (page 85)	These sections contain general references associated with this software, including PLC interface file structure and in-depth discussion of the TermLinx database tables.
License, Warranty, and Support Index	→	License, Warranty and Support (page 117)	This section contains License, Warranty, and Support information. Index of chapters.

2   Product Specifications

TermLinx™ is an innovative Terminal Management System (TMS) designed for the Microsoft™ Windows™ XP platform. It meets the growing industry demand for seamless database connectivity to the corporate host management systems. At the same time, it has been designed for cost effective stand-alone operation. One of its outstanding features is its use of non-proprietary, globally available hardware and software platforms, which make it relatively easy to support. TermLinx integrates tightly with Rockwell Automation™ PLCs for its system functions (with a direct data link) and communication interface to the AccuLoad™ Batch Controllers and Set-Stop unit. Because the same PLC can be used for the overall terminal control, TermLinx eliminates the need for additional hardware for station control.

- Easy to use Touch Screen interface
- Display status and alarm information in your HMI
- Uses ORACLE™ database
- Patented Water Cut Technology
- Field Configurable
- Field Expandable

2.1   Functional Specifications

- **Operating system:** Microsoft Windows XP
- **Controller:** Industrial grade non-proprietary platform with global presence (Rockwell Automation PLC)
- **TermLinx, Database Server, System Computer:** Industrial grade touch screen Pentium™ PC
- **Open System Architecture:** ODBC & ACTIVE-X Object module integrated into an HMI Container (Rockwell Software™ RSView32™, Wonderware™, and so on)
- **Well established client/server type relational database engine:** ORACLE XE 10g
- Flexible and expandable database tables to accommodate wide range operating data file structures
- Ethernet, TCP/IP, LAN/WAN, and PPP connectivity
- Corporate Database access to Multiple TermLinx applications at remote locations
- Tightly integrated with terminal automation PLC system
- Current Transaction data (audit trail) written to PLC data file for HMI or PLC host using RSLinx

- Communication interfaces for Set-Stop units (AccuLoad)
- Option for using powerful internal functions for replacing external Set-Stop units for product volume measurement and batch control using ProSoft's in-chassis flow computer

3   Administrator Roles

3.1   Account Administrator

The Account Administrator (AA) is responsible most of the initial population of the data in the TermLinx database, and for ongoing data updates. He maintains the timeliness of the Accounting Database that is used for creation and validation of accountable transactions (for example, a new Quota when a new delivery contract has been signed, and changes to the list of truckers who can log in and create transactions according to changes in carriers' employee lists). He is also responsible for retrieving the completed transactions and preparing billing invoices to customers from them (or payment orders to suppliers). He should also inspect the retrieved transactions for any that indicate unauthorized flow, and report them to the Maintenance Engineer if their amounts are excessive. The AA may use TermLinx Database Manager for this.

In the event of a power failure at the site, or lost or dropped network connection, and if any transactions were performed manually while the TermLinx system was down, the corporate office may find it necessary to manually enter those transactions into the TermLinx database. It is the responsibility of the Account Administrator to analyze the database differences and manually enter the transactions.

Once the site code has been assigned and entered into TermLinx, the Account Administrator can proceed with populating the database.

3.2   Database Administrator

The Database Administrator is responsible for maintaining the health of the database, including regular backups, and maintenance of network connectivity where necessary. He creates scripts, triggers, or other possible automated or manual database actions to synchronize the site's TermLinx data with the corporate master data. He ensures these functions are run. There are no TermLinx tools specifically for this. The database administrator normally works at the corporate office.

In the event of a lost or disconnected network connection, TermLinx will automatically continue to operation with the database it has. When the network connection is regained, the corporate office needs to re-synchronize the data. The Database Administrator needs to provide database scripts to accomplish this.

If customization of the TermLinx database is required to support other corporate or site systems, the database administrator may add additional fields to the existing TermLinx tables. This will not cause harm to the operation of TermLinx. TermLinx supplies no tools to specifically do this. ProSoft Technology's technical support will not be able to support any custom additions you make to the TermLinx database, nor can ProSoft ensure product upgrade and/or backwards compatibility. Thus, you do this at your own risk.

Database Population

At the time of site setup, the System Integrator works with the Account Administrator to perform initial population of the database.
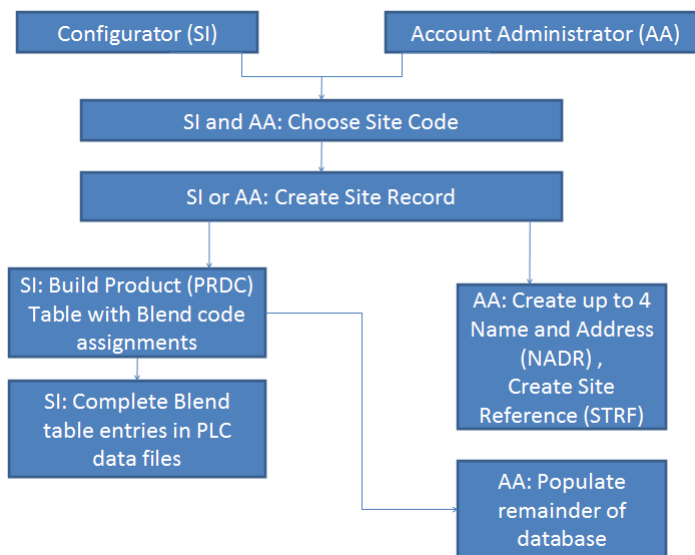
To start off the process, there must be a site code assigned and put into the system. Then the SI can populate the Product table with the Blend code information, and then the Account Administrator can input the rest of the information in the database. The SI needs to coordinate the Blend information in the Product table with the PLC data file. Additionally, the Account Administrator needs to set site Name and Address information.

Name and Address, and Site Reference

TermLinx can hold up to 4 names and addresses for this one site. For example, one entry may be for the site location, and another may be for the contact office for the operator of the site who is not necessarily at the site.

Populating the Accounting Database

The Accounting Database consists of these 17 tables:

Logical Name	Actual Table Name
Site	SITE
Name and Address	NADR
Site Reference	STRF
Product	PRDC
Carrier	CARR
Driver	DRVR
Driver – Carrier Cross Reference	DCXR
Vehicle	VHCL
Province / State	PVST
Location	LOCN
Lift Quota	QOTL
Dump Quota	QOTD
Lift Quota – Carrier Cross Reference	QLCX
Dump Quota – Carrier Cross Reference	QDCX
Carrier – Hirer Cross Reference	CHXR
Customer – Consignee Cross Reference	CCXR
Supplier – Producer Cross Reference	SPXR

The AA is responsible for populating the data in these tables. He can use the TermLinx Database Manager to do this. As new accounts, contracts, and so on. are created or deleted in the corporate system, the AA ensures the local TermLinx site reflects that.

4   Using the TermLinx Database Manager

In This Chapter

Use the TermLinx Database Manager (DBM) to:

- Create a complete TermLinx (ORACLE) database for a single or multiple sites in an online or offline mode
- Modify, update, delete or add records to an existing site database
- Create backup copies of all data records in the TermLinx database
- Restore a corrupted TermLinx database from the backup copy
- Export the database from the "live" TermLinx database and Import it into the remote TermLinx DBM host computer
- Generate database and transaction reports
- Create automatic scheduled (hourly, daily and so on) backups for all or selected database tables
- Generate automatic scheduled (hourly, daily, and so on) hard copy reports
- Reprint any BOL ticket from the Transaction Database

TermLinx Database Manager (DBM) is a stand-alone application that allows you to monitor and maintain the TermLinx Accounting Database.

You can use the TermLinx Database Manager in Online and Offline modes.

- In Online mode, the DBM is connected to a TermLinx database to manipulate data and get reports.
- In Offline mode, the DBM is not connected to any TermLinx database. You can view, print saved data and saved reports, and add new records to the saved data.

4.1   Setting up a Site

At site setup time, the System Integrator (SI) works with the Account Administrator to perform initial population of the database.

To start off the process, there must be a site code assigned and entered in the system. Then the SI can populate the Product table with the Blend code information, and then the Account Administrator can put in the rest of the information in the database. The SI needs to coordinate the Blend information in the Product table with the PLC data file. Additionally, the Account Administrator must set site Name and Address information.

4.2   Seeding the Database

Refer to C:\TermLinx\SQL\TESTDB.SQL. This SQL script is used to populate the sample database provided with TermLinx. The SITE, NADR, STRF, and PRDC tables need to have some initial data in them. Towards the top of the TESTDB.SQL file, you'll see the initial seeding that's done, and you can use this as a starting point for seeding your database. You'll want to change 'ProSoft' to be whatever your Site ID is.

4.3   Running the Database Manager

Important: Although the TermLinx Database Manager fully supports the standard Windows point and click interface, it may be simpler in some cases to use the equivalent keyboard commands, so the following procedure describes how to access the database manager using only a keyboard.

Basic Menu Navigation
- Press **[F10]** to use the Main Menu.
- Use left and right arrow keys to navigate the main menu entries.
- Use the down arrow key to expand the selected entry. Navigate the expanded list with the left and right arrow keys.
- Use the right arrow key to expand a submenu.
- Press **[Enter]** to execute the selected menu command.
- To return from the Main Menu to the current dialog box, press **[Esc]**. Depending on the level of menu navigation, you may have to press **[Esc]** multiple times to exit the menu system.
- Press **[Tab]** to navigate between fields in a dialog box.

Using the external keyboard:

1 Press and hold the **[Esc]** key then press **[Ctrl]** to open the Start Menu.

2 Touch the screen or use the arrow keys to navigate to Programs > ProSoft Technology > TermLinx > TermLinx Database Manager.
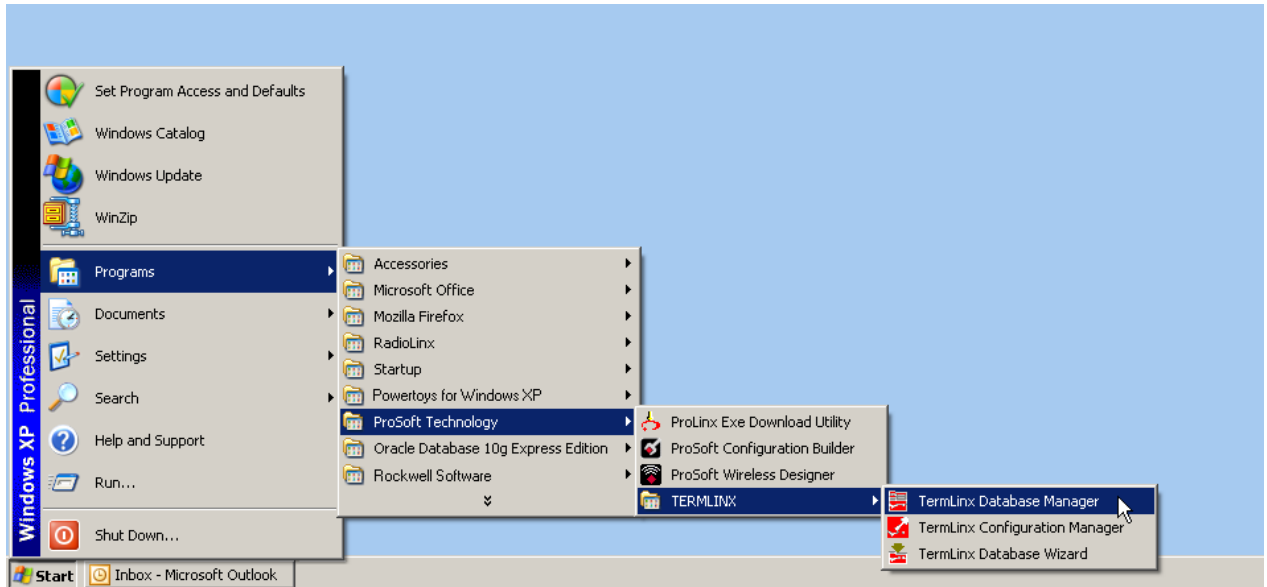
3 The TermLinx Database Manager displays. Press **[Enter]** to dismiss this window and open the ODBC Logon dialog box.
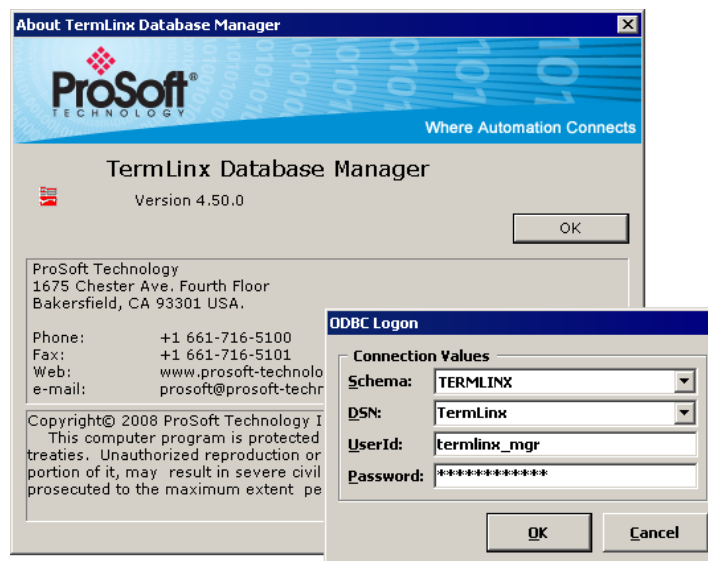
4   In the ODBC Logon dialog box, enter:
   o   Schema = "TERMLINX"
   o   DSN = "TermLinx"
   o   UserId = "termlinx_mgr"
   o   Password = "termlinx_mgr"

4.3.1 Internal Database Dependencies ("Foreign Key" References)

Some fields in some tables contain primary keys of records in other tables. When such a reference is non-null, the referenced (target) record must exist. Unresolvable references are not permitted. This condition is called "referential integrity".

For example, each table except SITE has a hidden field that contains the ID of your currently selected Site. This field is maintained automatically by the Database Manager, and it is this field that allows TermLinx to differentiate tables belonging to one site from tables of the same name belonging to other sites.

Other cases are more explicit. For example, in order for a new driver to dump a load, the driver must be entered into the database as a driver (in the DRVR table) and must also be associated with a carrier (in the DXCR table).

The Oracle database services enforce referential integrity. This means that, for example, you cannot add the DXCR record without first adding the DRVR record that our DCXR record will refer to. This also means that if you delete the driver from DRVR, the driver's carrier association is deleted from DCXR automatically.

In other cases, such as a reference from an account (Dump Quota, QOTD) to a supplier (NADR), the presence of the QOTD record will prevent the NADR record from being deleted, and in order to delete the NADR the QOTD must be deleted first.

Tip: The order of the entries in the "Administration / Table Maintenance" menu can be helpful for determining dependencies. Tables lower in the list may refer to tables higher in the list, but never the other way round. So, to add a multi-table item, add to the listed tables in top-down order, and when deleting, delete from the listed tables bottom-up.

4.4 Working Online

Working Online means that you have a connection to the "live" TermLinx database. The changes you make will take effect as soon as you use the Delete, Update, or Add buttons on the Table Maintenance dialog boxes.

To work online you must first connect to a TermLinx database:

1 Open the Administration menu, and then choose Database Connection. This action opens the ODBC Login dialog box.

2 In the ODBC Logon dialog box, enter:

DSN = "TermLinx"
UserId = "TermLinx_mgr
Password = "TermLinx_mgr

3 Click OK to connect to the database.

To add new records which have been entered in offline mode:

You can add and modify records to the database even when you do not have a database connection. TermLinx Database Manager saves your work in CSV (Comma Separated Values) files, which you can use to update the "live" TermLinx database the next time you connect to the database.

1 Open the File menu, and then choose Open. This action opens a standard File Open dialog box.

2 Locate the file you saved during your offline section, and click Open. This action opens a Table Maintenance dialog box corresponding with the table data you saved during your offline session.

3 Select the first new record in the list window, and then click Add to add the record to the database. The help window at the bottom of the dialog box will confirm when the record has been added.

4 Repeat steps 2 and 3 for each record that must be added.

Tip: The order of the entries in the "Administration / Table Maintenance" menu can be helpful for determining dependencies. Tables lower in the list may refer to tables higher in the list, but never the other way round. So, to add a multi-table item, add to the listed tables in top-down order, and when deleting, delete from the listed tables bottom-up.

To add new records:

1 Open the Administration menu, and choose Table Maintenance. This action opens a submenu with a list of tables you can edit.

2 In the Table Maintenance submenu, choose the table to edit. This action opens a Table Maintenance dialog box that allows you to view and edit the contents of records in each table.

3 To create a new record, select <New record>.

4 Fill in the fields in the dialog box, and then click Add to save the record.

Important: The primary key for each record must be unique. You cannot create a new record that has the same primary key as an existing record. You cannot change the primary key for an existing record to be the same as the primary key for another record.

To update or correct data:

1 Open the Administration menu, and choose Table Maintenance. This action opens a submenu with a list of tables you can edit.

2 In the Table Maintenance submenu, choose the table to edit. This action opens a Table Maintenance dialog box that allows you to view and edit the contents of records in each table.

3 Click the **Find** button to populate the list window on the left side of the dialog box, and then select the record to edit. Modify the fields in the dialog box, then click Update to save the record.

To delete (permanently remove) records:

1 Open the Administration menu, and choose Table maintenance. This action opens a submenu with a list of tables you can edit.

2 In the Table Maintenance submenu, choose the table to edit. This action opens a Table Maintenance dialog box that allows you to view and edit the contents of records in each table.

3 Select a record and click Delete.

Tip: The order of the entries in the "Administration / Table Maintenance" menu can be helpful for determining dependencies. Tables lower in the list may refer to tables higher in the list, but never the other way round. So, to add a multi-table item, add to the listed tables in top-down order, and when deleting, delete from the listed tables bottom-up.

Note: After making changes to the database, click the Refresh button to re-read table data from the database so that you can view, save, or print the newest data.

To save or print data:

▪ Open the File menu and choose Save to save all the data in the current table in .CSV format.

▪ Open the File menu and choose Print to print all the data in the current table to the default Windows printer.

Tip: You can save or print all fields in a table, or only selected fields. Selected fields are colored black in the Table Maintenance dialog box. To un-select a field, click the field name, and notice that the text changes from black to white. Unselected fields will not be saved or printed.

Create a log file of changes to the current table, by opening the File Menu and clicking Log. A log file listing all changes you have made to the current table during this editing session will be stored in .CSV format in C:\TermLinx\Programs\Data.

4.5   Working Offline

You can add and modify records to the database even when you do not have a database connection. TermLinx Database Manager saves your work in CSV (Comma Separated Values) files, which you can use to update the "live" TermLinx database the next time you connect to the database. This feature is useful if you are adding records while in the field, or if you delegate data entry tasks to a worker without a database connection.

To view saved data and saved report templates:

1   Open the File menu and choose Open. This action opens a standard File Open dialog box.
2   Select the file to view and then click Open.
3   When the file window is opened, you can view and print it (to print select File | Print).

To add new records:

1   Open the Administration menu, and choose Table Maintenance. This action opens a submenu with a list of tables you can edit.
2   In the Table Maintenance submenu, choose the table to edit. This action opens a Table Maintenance dialog box that allows you to view and edit the contents of records in each table.
3   Select <New record>. Fill in the fields in the dialog box, and then click Add to save the record.
4   Repeat steps 2 and 3 until you have entered all the new records.
5   Records are saved in .CSV format so that you can open them later when you connect to the database. Enter the name for your data, and then click Save.

Note: For data integrity reasons, you cannot modify existing records - you can only add new ones. You must be Online to modify existing records.

4.6   Common Database Manager Tasks

4.6.1   Selecting a Site to Work on

On systems where more than one site is configured, it is important to choose the correct site to work on before making any changes to the database.

To choose a site:

1   Open the Administration menu and choose Site Selection. This action opens the Site Selection dialog box, with a list of sites configured for your TermLinx system.
2   On the Site Selection dialog box, select the site to edit, and then click OK.

4.6.2 Table Maintenance

1 Open the Administration menu, and choose Table maintenance. This action opens a submenu with a list of tables you can edit.

2 In the Table Maintenance submenu, choose the table to edit. This action opens a Table Maintenance dialog box that allows you to view and edit the contents of records in each table.

- o To edit an existing record, use the **Find** button to populate the list window on the left side of the dialog box, and then select the record to edit. Modify the fields in the dialog box, then click Update to save the record.
- o To create a new record, select <New record>. Fill in the fields in the dialog box, and then click Add to save the record.

Tip: To "clone" an existing record, select a record to copy, edit the data fields, being sure to change the Primary Key for the record, and then click Add.

- o To delete (permanently remove) a record, select the record to delete and then click Delete.

Important: The primary key for each record must be unique. You cannot create a new record that has the same primary key as an existing record. You cannot change the primary key for an existing record to be the same as the primary key for another record.

The window at the bottom of the dialog box always contains help text related to the current task.

3 When you are finished editing a table, click Close, or press [Ctrl][F4] to close the dialog box.

Adding a new carrier

1 Add a new record to the Name and Address (NADR) table, following the Table Maintenance steps above. You must complete these fields in the tabbed panel:

- o Part 1 Tab: Name and Address Code (primary key)
  Obtain a unique 5-digit number from Head Office.
- o Part 1 Tab: Name
  This item appears on documents and in drop-down lists for the driver.
- o Part 2 Tab: Carrier
  Put a single "X" in this box. Make sure all other (small) boxes are empty.

2 Add a new record to the Carrier (CARR) table, completing these fields:

- o Name and Address Code (primary key)
  Use the same 5-digit number you used for the NADR record.

The carrier is now available for receiving assignments of plants and drivers.

Adding a new plant and its account

Note: The following steps are for sites where only one carrier is authorized to haul from the new plant. For sites using multiple carriers, refer to Adding Multiple Carriers (page 83).

1 Add a new record to the Name and Address (NADR) table, completing these fields:
- o Part 1 Tab: Name and Address Code (primary key)
- o Part 1 Tab: Name
  This item appears on documents and in drop-down lists for the driver.
- o Part 2 Tab: Enter an X in the box next to Supplier

2 Click Add to add the record to the database.
3 Next, add a new record to the Dump Quota (QOTD) table, completing these fields:
- o Part 1 Tab: Base Quota Number
  Enter 0.
- o Part 1 Tab: Quota Confirmation Code (primary key part 1)
  Enter the same plant name you entered into NADR. This item appears on documents and in drop-down lists for the driver.
- o Part 1 Tab: Effective Date and Time (primary key part 2)
  Enter the date and time for account to become active, using the format "yyyy-mm-dd HH:nn:ss" (four-digit year, numeric month, 24-hour clock).
- o Part 1 Tab: Expiration Date and Time
  Enter the date and time for account to become inactive, using the format "yyyy-mm-dd HH:nn:ss" (four-digit year, numeric month, 24-hour clock).
- o Part 1 Tab: Enter an X in the box next to Disable Allocation Control
- o Part 3 Tab: Product Code
  Enter "C3+". This is a reference to the Product (PRDC) table.
- o Part 3 Tab: Carrier Code
  Enter the carrier code for the carrier that hauls from this plant (refers to the Carrier (CARR) table).
- o Part 4 Tab: Name and Address (Receiver)
  Enter the NADR code of the entity that will receive the shipment from this carrier.
- o Part 4 Tab: Name and Address (Supplier)
  Enter the 5-digit code of the newly added plant.

  Leave all other fields blank. If you are cloning an existing record, you should clear all other fields on the Part 4 Tab.

The account is now available for selection by drivers working for the carrier that lifts product at the plant.

Adding a new driver

1 Add a new record to the Driver (DRVR) table, completing these fields:

- o Part 1 Tab: Driver Number (primary key)
  Choose a unique number to identify the driver. This is the Driver ID the driver will use to log in.
- o Part 1 Tab: Driver Code
  Enter the same number.
- o Part 2 Tab: Personal Identification No.
  This is the Personal Identification Number (PIN or password) the driver will use to log in.
- o Part 2 Tab: Driver Name.
  Displayed to the driver during a session, and printed on documents.

2 Add a new record to the Driver-Carrier Cross-Reference (DCXR) table, completing these fields:

- o Driver Number (primary key part 1)
  The driver number you entered above.
- o Carrier Code (primary key part 2)
  The identifier of the carrier in the Carrier (CARR) table.

The driver may now log in and dump loads from any plant from which the driver's carrier is authorized to haul.

Recovering from a system failure

Important: If TermLinx crashes, it is possible that the last ticket number in the database will be duplicated when TermLinx starts up again.

To avoid duplicate ticket numbers after a system crash, run the procedure RPL_SQNC.SQL to reset the ticket numbers. After you run that procedure, you can start TermLinx again.

You can find the file RPL_SQNC.SQL in the TermLinx installation folder, normally C:\TermLinx\SQL. Open the file in NotePad.exe and read the instructions and warnings before running it.

Changing User Names and Passwords

The script file "CREATUSR.SQL" of the TermLinx database schema defines the roles and several typical User IDs Comments in that file outline the purpose of each role.

An administrator can change, create or delete User IDs for any user except the schema owner. The following User IDs must exist in order for TermLinx to run successfully.

- user TERMLINX_KRN of role TERMLINX_SRVR
- user TERMLINX_MGR of role TERMLINX_USER.

Use the TermLinx Configuration Manager to manage these User IDs.

5   TermLinx Data Model

The database is separated into five sub-databases:

- Operational Database
  Operational characteristics of the Site.
- Version Database

    The version number of the SQL schema describing the remaining databases.

- Accounting Database
  Relational database of Product-transfer contracts and the parties thereto.
- Transaction Database
  Record of Product transfers; a satellite of the Accounting Database.
- Version Database
  The version number of the SQL schema describing the next two databases.

5.1   Sample Database

A sample database is installed with your software. The sample database site ID is "ProSoft". The sample database allows you to see how the tables should be set up, however, you must set up your own site and database for the product to work correctly.

Once you begin create a Site ID in the Site table, it's easy to toggle between the sample site and your site for comparison.

To switch between sites:

1   Go to the Administration menu and choose Site Selection.
2   In the Site Selection dialog box, select a site and click OK.

The name of the site you selected will appear in the DBM window title bar.

Entero Users

Warning: Entero systems will not work if the ProSoft Site ID is in the database.

You can view the sample database before connecting to Entero, but you must rename the "ProSoft" Site ID to a numeric value *before connecting to Entero*. Run script [CHNGSTID.SQL] in the C:\TermLinx\Sql folder to give the Site ID a numeric value.

5.2   Operational Database

Describes the physical configuration of the Site, and is more-or-less closely tied to PLC data files and associated ladder logic.

Changes to the Operational Database are usually associated with physical changes to the Site, or with changes to operational procedures at the Site, and thus are normally performed by operations personnel.

This database describes one Site only. It resides on the same machine as the instance of TermLinx that manages that Site.

Table	Description
SITE	Site "table"
	Specifies operational characteristics of the Site as a whole. This "table" contains exactly one "row".
BLND	Blend "table"
	Identifies operational characteristics of Products that may be transferred at the Site. This "table" contains a limited number of "rows". Its primary key as seen from the Accounting Database is a numeric integer starting at 1.
ISLD	Island "table"
	Identifies and characterizes metering assemblies through which Product is Lifted from or Dumped at the Site. This "table" contains a limited number of "rows". Its primary key as seen from the Accounting Database is a numeric integer starting at 1, stored as a two-digit string, for example, "01".

The operational configuration of the Site is isolated from Accounting by the partition described here. Where necessary, Accounting Database entries refer to the operational configuration by means of primary key references to BLND and ISLD only.

In contrast to the remaining databases, the Operational Database is not implemented as a "standard" relational database, and consequently (in this version of TermLinx) is not accessible by standard database tools that use SQL.

5.3   Accounting Database

The Accounting Database describes relationships among the entities involved in and by contracts for the transfer of Products at each Site and the constraints upon transactional activity against those contracts.

Changes to the Accounting Database reflect corresponding changes in the described relationships and (in the case of Quotas) changes in inventory status and forecasts, and are normally performed by accounting personnel.

This database describes any number of independent Sites. It may reside on any machine accessible by a TermLinx instance using a local or network connection. For robustness, recommended configuration is a single-Site database on the local machine. The remainder of the TermLinx Data Model section is written from the point of view of a single site.

Table	Description
VRSN	Version table
	Contains the schema version number in various representations.
SITE	Site table
	Holds values that concern each Site as a whole. In a single-site database, this table contains exactly one row. Though this table has the same name as a similar "table" of the Operational Database, the tables are distinct.
NADR	Name and Address table
	A common store for Carriers, Producers, Suppliers, Receivers, Marketers, Customers, Consignees, and so on, and Sites, and the roles, possibly multiple, which each entity may assume.
STRF	Site Reference table
	Holds references from the Site to the Name and Address table. Logically part of the Site table; physically separate to eliminate mutual foreign key references with NADR.
PRDC	Product table
	Identifies Products that may be transported to or from the Site.
CARR	Carrier table
	Identifies entities that have been hired by a contracting party for transport of Products from or to the Site. An extension of NADR for Carrier-only information.
DRVR	Driver table
	Identifies individuals who, acting as agents for Carriers, perform the actual contracted transport of Products.
DCXR	Driver-Carrier cross-reference table
	Identifies which Drivers act as agents for which Carriers.
VHCL	Vehicle table
	Identifies the mobile vessels which are operated by Carriers for the transport of Products.
PVST	Province/state table
	Identifies jurisdictions where Liftings are to be delivered and where Dumpings are being delivered from.
LOCN	Location table
	Identifies geographic locations where Liftings are to be delivered and where Dumpings are being delivered from.

Table	Description
QOTL	Quota table (Lift)
	Identifies Lifting contracts, which are contracts for sale of a quantity of a Product by a Marketer to a Customer, and its delivery from the Site to a Consignee, with foreign transport facilitated by a Broker, an Exporter, and an Export-fees-payer, by a Carrier hired by one of the contracting parties, and specifies time-dependent allocations, pre-bookings, and forecasts of such quantities. Certain portions of this table are maintained by TermLinx and are changeable by accounting personnel only according to protocols that preserve the accounting integrity of the system.
QOTD	Quota table (Dump)
	Identifies Dumping contracts, which are contracts for purchase of a quantity of a Product by a Receiver from a Supplier, and its delivery to the Site from a Producer, by a Carrier hired by one of the contracting parties, and specifies time-dependent allocations, pre-bookings, and forecasts of such quantities. Certain portions of this table are maintained by TermLinx and are changeable by accounting personnel only according to protocols that preserve the accounting integrity of the system.
QLCX	Lift-Quota-Carrier cross-reference table
	An optional table that identifies the Carriers that may haul loads against Lift Quotas. If this table is present and contains at least one row for a given Lift Quota that does not specify a Carrier directly, then this cross-reference is used in preference to that determined by column QOTL.RLHR and table CHXR (see below).
QDCX	Dump-Quota-Carrier cross-reference table
	An optional table that identifies the Carriers that may haul loads against Dump Quotas. If this table is present and contains at least one row for a given Dump Quota that does not specify a Carrier directly, then this cross-reference is used in preference to that determined by column QOTD.RLHR and table CHXR (see below).
CHXR	Carrier-Hirer cross-reference table
	When a Quota does not specify a Carrier directly, it specifies the contracting role of the entity that hired the Carrier. This table completes such references.
CCXR	Customer-Consignee cross-reference table
	When a Lift Quota does not specify a Consignee directly, the Consignee is determined from this table.
SPXR	Supplier-Producer cross-reference table
	When a Dump Quota does not specify a Producer directly, the Producer is determined from this table.
TXCP	When a Driver creates a new Transaction, the Quotas available to him for selection can be limited according to the contents of this table in conjunction with certain settings for the Site in the Operational Database. Besides being fully editable by authorized personnel, this table is also populated by TermLinx itself, which copies to this table limited information from Transactions that are terminated under specific abnormal conditions, thereby implementing automatic and dynamic lockout of Quotas associated with abnormal Transaction terminations.

5.4   Transaction Database

The Transaction Database records product transfers (Liftings and Dumpings) occurring at the Site.

Changes to the Transaction Database are made only by TermLinx, except for specific activity permitted to authorized personnel.

Like the Accounting Database, the Transaction Database may reside either locally or on the network. For robustness, it should be local. In the current implementation of TermLinx, the Transaction Database is physically part of the Accounting Database, and so they must reside together.

A Transaction is in one of five states:

- Tentative
  The Transaction has been created and is undergoing validation.
- Standby
  The Transaction has been validated but not yet activated ("started").
- Active
  The Transaction is in progress and being actively maintained by TermLinx.
- Terminated and incomplete
  The Transaction was cancelled (or abandoned) by the Driver or rejected by TermLinx prior to activation.
- Terminated and complete
  The Transaction was created by the Driver and has run its proper course, or it was internally created by TermLinx or the PLC.

These five states are partitioned in the database into two tables:

Table	Description
CTRN	Current Transaction table
	This table holds all Transactions that are in progress, that is, that have been created but not yet terminated, and comprises states "tentative", "standby", and "active". A Current Transaction holds incompletely expanded references to the Accounting Database for its validation parameters, expecting those references to remain intact until termination.
TRNS	Terminated Transaction table
	This table holds all Transactions that have been terminated, and comprises states "terminated and incomplete" and "terminated and complete". A terminated Transaction includes not only validation references and batch totals, but also an archive of its referential expansion into the Accounting Database (missing references are not expanded). This version of TermLinx retains only "complete" Transactions, discarding all "incomplete" ones.

A Transaction is created in the CTRN table, capturing selected information from the Accounting Database, and remains there until it is terminated ("posted"), at which time it is removed from the CTRN table and expanded into the TRNS table, capturing additional Accounting details.

The only columns editable from outside TermLinx itself are in the TRNS table: UPLD, ADJ1, and ADJ2.

5.5   Temporary Database

The Temporary Database is used as a work area for preparing a Transaction for printing of formal documents ("tickets"). As its contents are highly volatile, it is not intended as permanent storage to be interrogated from outside the TermLinx software.

It is possible for several Transactions (up to 9 "batches") to be reported on a single ticket. For this to occur, the Transactions for all batches must be created at the same time so that they have common accounting information. Upon completion, all the Terminated Transactions for the collection of batches receive the same ticket number.

When a Transaction is selected for printing of a ticket (or when the multiple Transactions for the batches of a single ticket are selected), the Temporary Database is emptied and then repopulated with the information in the selected Transaction(s) in a form that the ticket-printing software can use. That software (Crystal Reports) interrogates only the tables of the Temporary Database and does not access any other part of the TermLinx database. When the Transaction(s) are expanded into the Temporary Database, each target table receives at most one row.

Table	Description
RTRN	Report Transaction table
	Contains common and summary information for the ticket as a whole, encompassing all batches together.
BTC1	Batch table, batch 1
BTC2	Batch table, batch 2
BTC3	Batch table, batch 3
BTC4	Batch table, batch 4
BTC5	Batch table, batch 5
BTC6	Batch table, batch 6
BTC7	Batch table, batch 7
BTC8	Batch table, batch 8
BTC9	Batch table, batch 9
	Contains detailed information specific to a single batch of the ticket. Up to 9 batches per ticket are supported.

5.6   Detailed Description of the Four Databases

Each table is first summarized, giving a list of all its columns with their attributes, and then each column is described in detail.

Type:	Data type
b	Boolean ("true" or "false")
	Because Oracle does not have a "boolean" data type, this type is represented as a single character whose value is interpreted as "false" if space and "true" if non-space. Where TermLinx assigns a value to a boolean, the value "X" is used for "true". TermLinx triggers an INSERTed or UPDATEd NULL to a space.
m	Bitmap (collection of booleans)
	Whereas a boolean is an actual column in a SQL table, a bitmap is not, but is merely a means of referring to the booleans as a group.
v<n>	String of up to <n> characters
c<n>	String of exactly <n> characters
n	(Signed) decimal integer
u	Unsigned decimal integer
n<n>	(Signed) decimal integer of up to <n> digits
u<n>	Unsigned decimal integer of up to <n> digits
n<n>.<f>	(Signed) decimal number of up to <n> digits with <f> fractional digits
u<n>.<f>	Unsigned decimal number of up to <n> digits with <f> fractional digits
e	Enumeration (list of valid values)
f	Numeric Floating Point
d	Date
dt	Timestamp (date and time)
LKey:	Local key
-	Not a key
P	Primary key (or portion thereof) to current table
FKey:	Foreign key
-	Not a key
TABL	Upper case: "strong" foreign key reference to primary key of identified table; referential integrity enforced by DBMS
tabl	Lower case: "weak" foreign key reference to primary key of identified table; referential integrity not enforced by DBMS, hence may be violated, usually through "orphaned" references
Sr:	Data source
K	Configuration/operations
A	Accounting
D	Driver, or thru Driver validation sequence
T	TermLinx

5.6.1 Notes

1 Columns of multi-column keys are ordered most-to-least significant.

2 The primary key of each table is unique. Primary keys are used for identification by Head Office and to implement inter-table references. Where a table identifier is displayed to the Driver, the primary key is used (with one exception, PRDC.DSPC); for such tables an additional column is available for separate Head Office identification, but TermLinx does not enforce uniqueness on this "key".

3 Where character strings are trimmed, variable-length strings have no leading or trailing whitespace, and fixed-length strings have no leading whitespace.

4 Unless otherwise noted, NULL values are permitted and are interpreted by TermLinx as being equivalent to:

Type	Interpretation
b	False
v<n>	Empty string
c<n>	Exactly <n> spaces
n<n>.<f>	0.0
u<n>.<f>	0.0
f	0.0
d	No date
dt	No timestamp

Where a default is given, NULL is not permitted. Unless otherwise noted, no component of a primary key may be NULL or blank.

5 Unless otherwise noted, NULL foreign key references are permitted and are interpreted by TermLinx as being equivalent to a reference to a hypothetical row in which each column is NULL or has its default value. Non-NULL "strong" references must satisfy the usual integrity constraint. Non-NULL "weak" references that violate integrity are deemed to be NULL for referential purposes.

The VRSN table is special because its contents depend only upon the database schema, being populated during database creation (and possibly repopulated during schema upgrade) but otherwise remaining unchanged. It contains exactly one row, whose values are the schema version number or portions thereof in various formats. No user except the schema owner has the ability to modify this table.

5.6.2 VRSN-Version

Column	Type	LKey	FKey	Sr	Description
JUNK	v4	-	-	T	Placeholder
VRSN_BN	n10	-	-	T	Version code, binary numeric
VRSN_MJ	n3	-	-	T	Version number, major
VRSN_MN	n3	-	-	T	Version number, minor
VRSN_RL	n5	-	-	T	Version number, release
VRSN_ST	v20	-	-	T	Version code, string

```
VRSN.JUNK    Placeholder
```

This table restricts version number definition to a single location in the database scriptset (as default values to the columns of VRSN). An SQL "INSERT" statement cannot insert a row of all default values, but must explicitly set at least one value. "JUNK" has a value that is not a part of the version number.

```
VRSN.VRSN_BN  Version code, binary numeric
VRSN.VRSN_MJ  Version number, major
VRSN.VRSN_MN  Version number, minor
VRSN.VRSN_RL  Version number, release
VRSN.VRSN_ST  Version code, string
```

The version number of this TermLinx schema. The version number has the form "jj.nn.rrr", where "jj" is the major part, "nn" is the minor part, and "rrr" is the revision part. VRSN_BN is an unsigned 32-bit integer that stores "jj" in the most significant 8 bits (bits 24 to 31), "nn" in the next most significant 8 bits (bits 16 to 23), and "rrr" in the least significant 16 bits (bits 0 to 15). VRSN_ST replaces any leading zero of "jj" with a space.

Each additional table of the Accounting Database contains these three columns, of which only CHGC is used by TermLinx:

```
XSYS        External system support
```

This column can be used as synchronization support for external systems such as Head Office ("HO"), and may contain any value (including NULL).

```
RREF        Row reference
```

This column may contain any text (including NULL) useful to the database administrator to help identify specific rows.

```
CHGC        Change count
```

This column counts changes applied via the TermLinx Local Host software. Whenever the row is updated by the Local Host, the change count is incremented by 1 (initial INSERT sets it to 1). If Head Office always writes 0 into this column whenever it performs an INSERT or an UPDATE, then it can detect changes made by the Local Host. Also, the Local Host timestamps each change (including deletions) by an update to SITE.CHGD. Head Office may compare this against its last known value to determine whether the Local Host has made any change to the database. This timestamp is the only record of deletions that the Local Host leaves.

Unless otherwise noted, all engineering quantities having numerical significance to TermLinx (accumulations and allocations) use the SI (metric) system of units (volumes in liters, masses in grams), which may be scaled from the base SI units by TermLinx configuration options.

5.6.3 SITE-Site

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
CODE	v20	P	-	A	Site id
CHGD	d	-	-	A	Last change date
MGNC	b	-	-	A	Driver emergency override enable
ICXW	u3	-	-	A	Insurance certificate expiration warning
WCXW	u3	-	-	A	WCB expiration warning
TCXW	u3	-	-	A	TDG certification expiration warning
DLXW	u3	-	-	A	Driver's license expiration warning
LCXW	u3	-	-	A	Employee liability coverage expiration warning
SOXW	u3	-	-	A	Site orientation expiration warning
M5DW	u3	-	-	A	M5 inspection due warning (lift only)
VIDW	u3	-	-	A	Visual inspection due warning (lift only)
QLUW	u3	-	-	A	Lift quota usage count exhaustion warning
QLAW	u3	-	-	A	Lift quota allocation exhaustion warning
QLXW	u3	-	-	A	Lift quota duration expiration warning
QDUW	u3	-	-	A	Dump quota usage count exhaustion warning
QDAW	u3	-	-	A	Dump quota allocation exhaustion warning
QDXW	u3	-	-	A	Dump quota duration expiration warning
TTOL	u8	-	-	A	Vehicle tare weight tolerance, kg
MOTD	v80	-	-	A	Message-of-the-day
TRNR	u6	-	-	T	Last vehicle train number
TKLN	u8	-	-	T	Last ticket number, lift
TKLD	d	-	-	T	Last ticket date, lift
TKDN	u8	-	-	T	Last ticket number, dump
TKDD	d	-	-	T	Last ticket date, dump

```
SITE.XSYS   External system support
SITE.RREF   Row reference
```

Not used by TermLinx.

```
SITE.CHGC   Change count
```

Incremented by the Local Host when it updates the row.

```
SITE.CODe site id
```

Primary key. This code identifies the Site and is propagated through each table in both the Accounting and Transaction Databases as both a foreign key to SITE and the most significant component (STID) of the table's primary key.

```
SITE.CHGD   Last change date
```

Timestamp of the latest change to the database made by the Local Host.

```
SITE.MGNC   Driver emergency override enable
```

Enables selection for drop-down lists of QOT*.MGNC. Default is space.

```
SITE.ICXW   Insurance certificate expiration warning
SITE.WCXW   WCB expiration warning
SITE.TCXW   TDG certification expiration warning
SITE.DLXW   Driver's license expiration warning
SITE.LCXW   Employee liability coverage expiration warning
SITE.SOXW   Site orientation expiration warning
SITE.M5DW   M5 inspection due warning (lift only)
SITE.VIDW   Visual inspection due warning (lift only)
SITE.QLUW   Lift quota usage count exhaustion warning
SITE.QLAW   Lift quota allocation exhaustion warning
SITE.QLXW   Lift quota duration expiration warning
SITE.QDUW   Dump quota usage count exhaustion warning
SITE.QDAW   Dump quota allocation exhaustion warning
SITE.QDXW   Dump quota duration expiration warning
```

The number of days prior to expiration/due after which to remind the driver.
Default value is 0 for each (meaning no warning is issued).

The warning message that displays in TermLinx can be modified for the following
columns:

- SITE.ICXW
- SITE.WCXW
- SITE.TCXW
- SITE.DLXW
- SITE.LCXW
- SITE.SOXW
- SITE.M5DW
- SITE.VIDW

Note: The bold letters in the above list correspond with letters in the text file that you'll learn about
in the next section.

To modify a warning message:

1 Go to the directory where TermLinx is installed, for example,
   C:\Prosoft\TermLinx.
2 Open the Instance folder, and then open the XpireDue.txt file. The text file
   displays a list of letters followed by a definition in quotation marks.
3 Find the abbreviation for the warning message that you want to modify, and
   then type your text between the appropriate set of quotation marks.
4 Save the text file.
5 Restart TermLinx to ensure that the warning message displays properly.

```
SITE.TTOL   Vehicle tare weight tolerance, kg
x The number of days prior to expiration/due after which to remind the driver.
x Default value is 0 for each (meaning no warning is issued).
SITE.MOTD   Message-of-the-day
```

Used to generate the Message of the Day to inform drivers of important
information.

Not currently used.

```
SITE.TRNR  Last vehicle train number
SITE.TKLN  Last ticket number, lift
SITE.TKLD  Last ticket date, lift
SITE.TKDN  Last ticket number, dump
SITE.TKDD  Last ticket date, dump
```

The "effective" date and number of the latest terminated Transaction, for lift and dump respectively, and the last train number assigned to a multiple-vehicle train. See TRNS.TKCN and TRNS.TKCD for more detail. These columns are for reference only. External changes to them have no effect.

5.6.4 NADR-Name and Address

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
CODE	v20	P	-	A	Name and address code
RSFG	m	-	-	A	Role selection flags
SITE	b	-	-	A	Site
SOPR	b	-	-	A	Site Operator
CARR	b	-	-	A	Carrier
RCVR	b	-	-	A	Receiver
SPLR	b	-	-	A	Supplier
PDCR	b	-	-	A	Producer
MKTR	b	-	-	A	Marketer
CSTR	b	-	-	A	Customer
CNSG	b	-	-	A	Consignee
BRKR	b	-	-	A	Broker
XPTR	b	-	-	A	Exporter
XPFP	b	-	-	A	Export fees payer
MGNC	b	-	-	A	Emergency selection
NAME	v40	-	-	A	Name
ADR1	v40	-	-	A	Address line 1
ADR2	v40	-	-	A	Address line 2
CITY	v40	-	-	A	City name
PVST	v6	-	-	A	Province/state code
PZIP	v9	-	-	A	Postal/zip code
TELE	v18	-	-	A	Telephone number
ATTN	v20	-	-	A	To the attention of ...

```
NADR.XSYS  External system support
NADR.RREF  Row reference
```

Not used by TermLinx.

```
NADR.CHGC  Change count
```

Incremented by the Local Host when it updates the row.

```
NADR.STID   Site id
NADR.CODE   Name and address code
```

Primary key. If new rows for this table are created by the TermLinx Database Wizard, the value of CODE is assigned from a database sequence generator dedicated to that purpose.

```
NADR.RSFG   Role selection flags
```

** This is not a table column.

The booleans in this group indicate the role(s) that the entity may assume in product-transfer transactions. The general integrity constraint is that any row in this table that has a foreign reference to it must select the role that the foreign reference represents.

```
NADR.SITe site
```

The name and address of a lifting/dumping terminal. Two other tables, SITE and STRF, contain additional Site-only information; each Site is described by a combination of one row from each of the three tables SITE, STRF, and NADR where the row of NADR has NADR.SITE selected. Default is space.

```
NADR.SOPR   Site Operator
```

The Site Operator is responsible for the day-to-day operation and maintenance of the Site, and need not have the same address as that of the Site itself. For example, a Site might be owned and used by a consortium, one partner of which is contracted to maintain the Site and supply operations personnel. Default is space.

```
NADR.CARR   Carrier
```

A Carrier is hired by a contracting party to perform delivery of Product to be transferred under the contract. A Carrier is responsible for (and usually owns) the Vehicles used for the delivery, and hires Drivers to operate them. An extension table, CARR, contains additional Carrier-only information; the rows of CARR correspond with rows of NADR that have NADR.CARR selected. Default is space.

```
NADR.RCVR   Receiver
NADR.SPLR   Supplier
NADR.PDCR   Producer
```

These three roles are the parties to a Dumping (offloading) contract, in which the Receiver accepts from the Supplier custody of the Product which is to be delivered from the Producer to the Site. A typical dumping Site will have only one Receiver, its owner-operator, though larger Sites may be shared. For each, default is space.

```
NADR.MKTR   Marketer
NADR.CSTR   Customer
NADR.CNSG   Consignee
```

These three roles are the major parties to a Lifting (loading) contract, in which the Marketer transfers to the Customer custody of the Product which is to be delivered from the Site to the Consignee. A typical lifting Site will have only one Marketer, its owner-operator, though larger Sites may be shared. For each, default is space.

```
NADR.BRKR   Broker
NADR.XPTR   Exporter
NADR.XPFP   Export fees payer
```

When the destination of a lifting lies in a foreign country, certain additional formal documentation may be required by customs agents. These three roles provide additional entity identification required by U.S. Customs. For each, default is space.

```
NADR.MGNC   Emergency selection
```

Selectable for drop-down lists only if DRVR.MGNC is set. Default is space.

```
NADR.NAME   Name
```

Available for printing on formal documents. The TermLinx Database Wizard assumes that rows in the NADR table can be distinguished by the values of this column, and assigns the value of the actual primary key (NADR.CODE) for new rows from a database sequence generator dedicated to that purpose. The database schema, however, does not enforce uniqueness of NADR.NAME, so you should avoid using duplicate names. This column is trimmed.

```
NADR.ADR1   Address line 1
NADR.ADR2   Address line 2
NADR.CITY   City name
NADR.PVST   Province/state code
NADR.PZIP   Postal/zip code
NADR.TELE   Telephone number
NADR.ATTN   To the attention of ...
```

These columns are typical letterhead items which are available for printing on formal documents. Their use is optional. PVST is not a foreign reference to the PVST table. These columns are trimmed.

5.6.5 STRF-Site Reference

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
NADR	v20	-	NADR	A	Name and address (Site)
SOPR	v20	-	NADR	A	Name and address (Site Operator)
MKTR	v20	-	NADR	A	Default name and address (Marketer)
RCVR	v20	-	NADR	A	Default name and address (Receiver)

```
STRF.XSYS   External system support
STRF.RREF   Row reference
```

Not used by TermLinx.

```
STRF.CHGC   Change count
```

Incremented by the Local Host when it updates the row.

```
STRF.STID   Site id
```

Primary key.

```
STRF.NADR   Name and address (Site)
```

Foreign reference to storage of letterhead items for the Site.

```
STRF.SOPR   Name and address (Site Operator)
```

Foreign reference to storage of letterhead items for the Site Operator.

```
STRF.MKTR   Default name and address (Marketer)
```

For Lift Quotas in which QOTL.MKTR is NULL, this value resolves the reference, which in such a case is non-NULL.

```
STRF.RCVR   Default name and address (Receiver)
```

For Dump Quotas in which QOTD.RCVR is NULL, this value resolves the reference, which in such a case is non-NULL.

5.6.6 PRDC-Product

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
CODE	v8	P	-	A	Product code
DSPC	v32	-	-	A	Product display code
CPTS	u1	-	-	A	Number of significant components
BLND	u2	-	BLND	K	Blend code
CPCF	u5.4	-	-	A	Capacity factor (innage)
DSC1	v64	-	-	A	Product description line 1
DSC2	v64	-	-	A	Product description line 2
DSC3	v64	-	-	A	Product description line 3
DSC4	v64	-	-	A	Product description line 4
DSC5	v64	-	-	A	Product description line 5
DSC6	v64	-	-	A	Product description line 6
DSC7	v64	-	-	A	Product description line 7
DSC8	v64	-	-	A	Product description line 8
DSC9	v64	-	-	A	Product description line 9
DSCA	v64	-	-	A	Product description line 10
CHTC	v16	-	-	A	Customs harmonized tariff code
PRBC	v20	-	-	A	Product bar code

```
PRDC.XSYS   External system support
PRDC.RREF   Row reference
```

Not used by TermLinx.

```
PRDC.CHGC   Change count
```

Incremented by the Local Host when it updates the row.

```
PRDC.STID   Site id
PRDC.CODE   Product code
```

Primary key. Identifies the Product to Head Office.

```
PRDC.DSPC  Product display code
```

Identifies the Product to the Driver, but TermLinx does not enforce uniqueness. This column is trimmed.

```
PRDC.CPTS  Number of significant components
```

The number of components of the Product reported in the Transaction (TRNS.CPTn) that are significant for formal documents. Used, for example, to determine whether to report injected odorant on a BOL, or water content on a BOU. Default is 0. Currently not used.

```
PRDC.BLND  Blend code
```

Foreign reference to corresponding entry in the Operational Database BLND "table". The user's Accounting and Operations groups must agree on the assignment of Product codes to Blend numbers.

```
PRDC.CPCF  Capacity factor (innage)
```

A factor applied to the rated capacity of the Vehicle being loaded, for determining the actual maximum load. Intended to allow for thermal expansion of the Product in the vessel after loading. Default is 1.0. Mandated value for propane (C3) at a loading temperature of 15°C is 0.8911.

```
PRDC.DSC1  Product description line 1
PRDC.DSC2  Product description line 2
PRDC.DSC3  Product description line 3
PRDC.DSC4  Product description line 4
PRDC.DSC5  Product description line 5
PRDC.DSC6  Product description line 6
PRDC.DSC7  Product description line 7
PRDC.DSC8  Product description line 8
PRDC.DSC9  Product description line 9
PRDC.DSCA  Product description line 10
PRDC.CHTC  Customs harmonized tariff code
PRDC.PRBC  Product bar code
```

Items for printing on formal documents only. These columns are trimmed. The description items may include Emergency Response Plan telephone numbers, placard requirements, and so on.

5.6.7 CARR-Carrier

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
NADR	v20	P	NADR	A	Carrier code & Name and address (Carrier)
LKOT	b	-	-	A	Carrier locked out
ICXD	d	-	-	A	Insurance certificate expiration date
WCXD	d	-	-	A	WCB expiration date
LCXD	d	-	-	A	Employee liability coverage expiration date

```
CARR.XSYS  External system support
CARR.RREF  Row reference
```

Not used by TermLinx.

```
CARR.CHGC  Change count
```

Incremented by the Local Host when it updates the row.

```
CARR.STID  Site id
CARR.NADR  Carrier code & Name and address (Carrier)
```

Both primary key to CARR and foreign reference to NADR. The NADR reference supplies the name and address for formal documents.

```
CARR.LKOT  Carrier locked out
```

The Carrier is disallowed from using the system. Default is space.

```
CARR.ICXD   Insurance certificate expiration date
CARR.WCXD   WCB expiration date
CARR.LCXD   Employee liability coverage expiration date
```

If any date has expired, the Driver is notified by a message box, and Transactions for this Carrier are disallowed.

5.6.8 DRVR-Driver

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
CODE	u8	-	-	A	Driver code
DVNR	u8	P	-	A	Driver number
CNFG	m	-	-	A	Driver configuration
LKOT	b	-	-	A	Driver locked out
MGNC	b	-	-	A	Emergency authority
PGMR	b	-	-	A	Programmer authority
PINR	u6	-	-	A	Personal identification number
NAME	v40	-	-	A	Driver name
TCXD	d	-	-	A	TDG certification expiration date
DLXD	d	-	-	A	Driver's license expiration date
SOXD	d	-	-	A	Site orientation expiration date

```
DRVR.XSYS  External system support
DRVR.RREF  Row reference
```

Not used by TermLinx.

```
DRVR.CHGC  Change count
```

Incremented by the Local Host when it updates the row.

```
DRVR.STID  Site id
```

First component of primary key.

```
DRVR.CODE  Driver code
```

Identifies the Driver to Head Office; uniqueness not enforced.

```
DRVR.DVNR   Driver number
```

Second component of primary key. The Driver logs into the system with this number and a Personal Identification Number (PIN).

```
DRVR.CNFG   Driver configuration
```

** This is not a table column.

The booleans in this group select various options.

```
DRVR.LKOT   Driver locked out
```

The Driver is disallowed from using the system. Default is space.

```
DRVR.MGNC   Emergency authority
```

Enables selection for drop-down lists of NADR.MGNC and QOT*.MGNC. Default is space.

```
DRVR.PGMR   Programmer authority
```

Enables functions for Site troubleshooting and maintenance. Default is space.

Warning: These functions allow unrestricted access to the database. Improper use may result in data loss.

```
DRVR.PINR   Personal identification number
```

The PIN or Password used by the Driver to log in. Default is 0.

```
DRVR.NAME   Driver name
```

Used for identifying to the Driver the conversation with the TMS, and for printing on formal documents. This column is trimmed.

```
DRVR.TCXD   TDG certification expiration date
DRVR.DLXD   Driver's license expiration date
DRVR.SOXD   Site orientation expiration date
```

If any date has expired, the Driver is notified and Transactions are disallowed.

5.6.9 DCXR-Driver-Carrier Cross-Reference

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
DRVR	u8	P	DRVR	A	Driver code
CARR	v20	P	CARR	A	Carrier code

```
DCXR.XSYS   External system support
DCXR.RREF   Row reference
```

Not used by TermLinx.

```
DCXR.CHGC   Change count
```

Incremented by the Local Host when it updates the row.

```
DCXR.STID  Site id
DCXR.DRVR  Driver code
DCXR.CARR  Carrier code
```

Primary key. This Driver works for this Carrier.

5.6.10 VHCL-Vehicle

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
CARR	v20	P	CARR	A	Carrier code
CODE	v10	-	-	A	Vehicle code
VHCD	v10	P	-	A	Vehicle display code
EQPC	v10	-	-	A	Equipment class
EQPT	v10	-	-	A	Equipment type (subclass)
TRKT	b	-	-	A	Tractor or other non-vessel
TARE	u9	-	-	A	Listed tare weight, kg
GROS	u9	-	-	A	Listed gross weight, kg
CPCY	u8	-	-	A	Capacity
AXLS	u1	-	-	A	Number of axles
M5DT	d	-	-	A	M5 inspection due date (lift only)
VIDT	d	-	-	A	Visual inspection due date (lift only)

```
VHCL.XSYS  External system support
VHCL.RREF  Row reference
```

Not used by TermLinx.

```
VHCL.CHGC  Change count
```

Incremented by the Local Host when it updates the row.

```
VHCL.STID  Site id
VHCL.CARR  Carrier code
```

First two components of primary key; also a foreign reference to the Vehicle's owner.

```
VHCL.CODE  Vehicle code
```

Identifies the Vehicle to Head Office; uniqueness not enforced.

```
VHCL.VHCD  Vehicle display code
```

Third component of primary key. This code is the serial number or fleet number that uniquely identifies the Vehicle to its owner. Because CARR is also a component of this key, VHCD need be unique only within each Carrier. This column is trimmed.

```
VHCL.EQPC   Equipment class
VHCL.EQPT   Equipment type (subclass)
```

For configuration and choosing procedures according to Vehicle type, and for Vehicle identification on formal documents. These columns are trimmed. Each island may be configured to restrict its use to a single equipment class (for example, "road vehicle" or "railcar"); the subclass permits further classification (for example, "lead" or "pup").

```
VHCL.TRKT   Tractor or other non-vessel
```

If non-space, this vehicle is not a container capable of hauling Product on its own, but it does have weight which must be recorded and compensated for in weigh-scale operations. Default is space, meaning that this vehicle can be selected as a container.

```
VHCL.TARE   Listed tare weight, kg
VHCL.GROS   Listed gross weight, kg
```

The listed weights of the vehicle, for use in weigh-scale operations. May be null.

```
VHCL.CPCY   Capacity
```

The rated volume capacity of the Vehicle in liters, prior to application of PRDC.CPCF. Default is 0, meaning that liftings are not limited by capacity.

```
VHCL.AXLS   Number of axles
```

Optional.

```
VHCL.M5DT   M5 inspection due date (lift only)
VHCL.VIDT   Visual inspection due date (lift only)
```

If either date has expired, the Driver is notified and Transactions are disallowed.

5.6.11 PVST-Province / State

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
CODE	v6	P	-	A	Province/state code
PNAM	v24	-	-	A	Province/state name
FRGN	b	-	-	A	Foreign (international) jurisdiction

```
PVST.XSYS   External system support
PVST.RREF   Row reference
```

Not used by TermLinx.

```
PVST.CHGC   Change count
```

Incremented by the Local Host when it updates the row.

```
PVST.STID   Site id
PVST.CODE   Province/state code
```

Primary key. Typically the standard postal abbreviation.

```
PVST.PNAM   Province/state name
```

The full name of the jurisdiction. Must be non-NULL. This column is trimmed.

```
PVST.FRGN   Foreign (international) jurisdiction
```

Determines whether additional formal documents (for customs) are required for an international Lifting. Default is space.

5.6.12 LOCN-Location

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
PVST	v6	P	PVST	A	Province/state code
CITY	v40	P	-	A	City name

```
LOCN.XSYS   External system support
LOCN.RREF   Row reference
```

Not used by TermLinx.

```
LOCN.CHGC   Change count
```

Incremented by the Local Host when it updates the row.

```
LOCN.STID   Site id
LOCN.PVST   Province/state code
LOCN.CITY   City name
```

Primary key. Selection is required for a BOL, and may be required for a BOU.

5.6.13 QOTL-Lift Quota (account/allocation/booking)

- common to both Lift and Dump Quotas:

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
CODE	u12	-	-	A	Base Quota number
QCFC	v20	P	-	A	Quota confirmation code
EFFD	dt	P	-	A	Effective date and time
EXPD	dt	-	-	A	Expiration date and time
CFST	m	-	-	A	Quota configuration and status
MGNC	b	-	-	A	Emergency selection
LKOT	b	-	-	A	Locked out
ALCX	b	-	-	A	Disable allocation control
OVRN	b	-	-	A	Allow allocation overrun on last use
FOBR	b	-	-	A	FOB remote
TMNT	b	-	-	AT	Terminated
UPLD	n8	-	-	A	Uploaded

Column	Type	LKey	FKey	Sr	Description
TMDT	dt	-	-	AT	Termination timestamp
ACCT	u4	-	-	A	Account number
TCV1	f	-	-	A	Transaction control value 1
TCV2	f	-	-	A	Transaction control value 2
TCV3	f	-	-	A	Transaction control value 3
CTNR	v40	-	-	A	External contract number
CMNT	v80	-	-	A	Comment
PRDC	v8	-	PRDC	A	Product code
CARR	v20	-	CARR	A	Carrier code
RLHR	e	-	-	A	Role of Carrier hirer
PVST	v6	-	PVST	A	Destination/source province/state code
CITY	v40	-	LOCN	A	Destination/source city name
NUSE	u4	-	-	A	Maximum allowed number of uses (0 unlimited)
ALIM	u9	-	-	A	Allocation limit (0 unlimited)
AUSE	u9	-	-	T	Allocation used
LUSD	dt	-	-	T	Timestamp of last usage
NUSD	u4	-	-	T	Actual number of uses-for liftings:
MKTR	v20	-	NADR	A	Name and address (Marketer)
CSTR	v20	-	NADR	A	Name and address (Customer)
CNSG	v20	-	NADR	A	Name and address (Consignee)
BRKR	v20	-	NADR	A	Name and address (Broker)
EXPT	v20	-	NADR	A	Name and address (Exporter)
XPFP	v20	-	NADR	A	Name and address (Export fees payer)
EXPN	v20	-	-	A	Export permit number
CTPO	v20	-	-	A	Customer purchase order number

- common to both Lift and Dump Quotas:

```
QOTL.XSYS   External system support
QOTL.RREF   Row reference
```

Not used by TermLinx.

```
QOTL.CHGC   Change count
```

Incremented by the Local Host when it updates the row.

```
QOTL.STID   Site id
```

First component of primary key.

```
QOTL.CODE   Base quota number
```

Identifies the Quota to Head Office; uniqueness not enforced.

```
QOTL.QCFC   Quota confirmation code
QOTL.EFFD   Effective date and time
```

Last two components of primary key. QCFC is the text displayed to the Driver in the Quota drop-down list; this column is trimmed. EFFD may be null.

`QOTL.EXPD   Expiration date and time`

The Quota is valid only during the period from EFFD to EXPD. A NULL EFFD is deemed to be the beginning of time and a NULL EXPD the end of time. Different periods may be chosen for the same base Quota number by inserting multiple rows into this table. For any base Quota number, the row selected for the Driver's drop-down list is the one with the latest EFFD that has already arrived; if also EXPD has expired, the Quota is not selected. This scheme implements semi-permanent Quotas, in which an ongoing contract may undergo several changes throughout its life (for example, change of authorized Carrier); changes to Quotas may be downloaded ahead of time, and the changes automatically take effect on the effective date.

`QOTL.CFST   Quota configuration and status`

** This is not a table column.

The booleans in this group select various options and show various status.

`QOTL.MGNC   Emergency selection`

Selectable for drop-down lists only if DRVR.MGNC or SITE.MGNC is set. Default is space.

`QOTL.LKOT   Locked out`

Disallows selection for the Driver's drop-down list. Default is space.

`QOTL.ALCX   Disable allocation control`

Allocation limits are not enforced. Default is space.

`QOTL.OVRN   Allow allocation overrun on last use`

May be used to distinguish allocations (true) from pre-bookings (false). Default is space.

`QOTL.FOBR   FOB remote`

Determines whether the "shipper" (the legal owner of the product during transport) is the Customer (FOBR false) or the Marketer (FOBR true). Default is space.

`QOTL.TMNT   Terminated`

Set by TermLinx when:

- the Quota reaches its maximum use count;
- the draw against the Quota reaches or exceeds its allocation;
- the Quota has passed its expiration time.

Alterable by Head Office. Default is space.

`QOTL.UPLD   Uploaded`

Set non-zero by Head Office upon upload, and makes the Quota a candidate for purging by TermLinx (if TMNT is set and TMDT is sufficiently old). Default is 0.

`QOTL.TMDT   Termination timestamp`

Set by TermLinx when it sets TMNT. Alterable by Head Office.

`QOTL.ACCT   Account number`

For Head Office reference, as desired. Transactions not derived from a Quota (via Driver conversation) receive an "account number" between 1 and 99 determined by TermLinx or the PLC (see TRNS below). For Quota-derived Transactions, the "account number" is taken from this column. Default is 0.

`QOTL.TCV1   Transaction control value 1`
`QOTL.TCV2   Transaction control value 2`
`QOTL.TCV3   Transaction control value 3`

These values are transferred to the PLC for transactions authorized against this Quota, in order to provide the PLC with Quota-specific information for specialized control functions.

`QOTL.CTNR   External contract number`

For Head Office reference and printing on formal documents. This column is trimmed.

`QOTL.CMNT   Comment`

This is optional text associated with the Quota that is to be printed on formal documents. This column is trimmed.

`QOTL.PRDC   Product code`

Foreign reference to the Product implied by this Quota.

`QOTL.CARR   Carrier code`
`QOTL.RLHR   Role of carrier hirer`

Specifies the Carrier(s) authorized for this Quota, determined by evaluating the following rules in sequence. When the first condition is satisfied, further evaluation is halted. Items marked "[-]" are assertions only, and do not by themselves select Carriers or cause sequence termination:

(a) If CARR is non-NULL, it is a foreign reference to CARR, and RLHR is NULL; this Carrier is the only authorized Carrier.

[-] CARR is NULL, and RLHR is one of "NULL", "MKTR", "CSTR" and "CNSG". Note that the 4-character value "NULL" is distinct from a missing value which is said to be NULL.

(b) If table QLCX contains any rows that refer to this Quota, then the authorized Carriers are those given on those rows.

[-] Table QLCX does not exist, or contains no rows that refer to this Quota.

(c) If RLHR is "NULL", then all Carriers are authorized.

[-] RLHR is one of "MKTR", "CSTR" and "CNSG", which specifies the role of the entity that hired the Carrier (information obtainable from the contract).

(d) RLHR selects the corresponding NADR reference in the Quota, then both are applied through CHXR to determine the authorized Carriers. If RLHR is "CNSG", then QOTL.CNSG must not be NULL.

```
QOTL.PVST  Destination/source province/state code
QOTL.CITY  Destination/source city name
```

The city and jurisdiction of the destination for this Quota, if known. If PVST is NULL, CITY is ignored.

```
QOTL.NUSE  Maximum allowed number of uses (0 unlimited)
```

Default is 0.

```
QOTL.ALIM  Allocation limit (0 unlimited)
```

Maximum volume draw against this Quota. Default is 0.

```
QOTL.AUSE  Allocation used
```

Total actual volume draw against this Quota. Compared to ALIM to determine allocation remaining. Default is 0.

```
QOTL.LUSD  Timestamp of last usage
```

Set by TermLinx.

```
QOTL.NUSD  Actual number of uses
```

Set by TermLinx. Default is 0.

- for liftings:

```
QOTL.MKTR  Name and address (Marketer)
QOTL.CSTR  Name and address (Customer)
QOTL.CNSG  Name and address (Consignee)
```

Foreign references to NADR for the three primary roles in a Lifting contract. For each Lift Quota, CSTR is required, MKTR if NULL defaults to SITE.MKTR (which is then required), and if CNSG is NULL the Consignee is determined by a drop-down list derived via CCXR.

```
QOTL.BRKR  Name and address (Broker)
QOTL.EXPT  Name and address (Exporter)
QOTL.XPFP  Name and address (Export fees payer)
QOTL.EXPN  Export permit number
```

Additional requirements for an international Lifting contract, in order to complete additional formal documents. EXPN is trimmed.

```
QOTL.CTPO  Customer purchase order number
```

Available for printing on formal documents. This column is trimmed.

```
QOTD-Dump Quota (account/allocation/booking)
```

- common to both Lift and Dump Quotas:

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
CODE	u12	-	-	A	Base Quota number
QCFC	v20	P	-	A	Quota confirmation code
EFFD	dt	P	-	A	Effective date and time
EXPD	dt	-	-	A	Expiration date and time
CFST	m	-	-	A	Quota configuration and status

Column	Type	LKey	FKey	Sr	Description
MGNC	b	-	-	A	Emergency selection
LKOT	b	-	-	A	Locked out
ALCX	b	-	-	A	Disable allocation control
OVRN	b	-	-	A	Allow allocation overrun on last use
FOBR	b	-	-	A	FOB remote
WOLK	b	-	-	AT	Water overlimit lockout (Dump only)
TMNT	b	-	-	AT	Terminated
UPLD	n8	-	-	A	Uploaded
TMDT	dt	-	-	AT	Termination timestamp
ACCT	u4	-	-	A	Account number
TCV1	f	-	-	A	Transaction control value 1
TCV2	f	-	-	A	Transaction control value 2
TCV3	f	-	-	A	Transaction control value 3
CTNR	v40	-	-	A	External contract number
CMNT	v80	-	-	A	Comment
PRDC	v8	-	PRDC	A	Product code
CARR	v20	-	CARR	A	Carrier code
RLHR	e	-	-	A	Role of Carrier hirer
PVST	v6	-	PVST	A	Destination/source province/state code
CITY	v40	-	LOCN	A	Destination/source city name
NUSE	u4	-	-	A	Maximum allowed number of uses (0 unlimited)
ALIM	u9	-	-	A	Allocation limit (0 unlimited)
AUSE	u9	-	-	T	Allocation used
LUSD	dt	-	-	T	Timestamp of last usage
NUSD	u4	-	-	T	Actual number of uses

▪ for dumpings:

Column	Type	LKey	FKey	Sr	Description
RCVR	v20	-	NADR	A	Name and address (Receiver)
SPLR	v20	-	NADR	A	Name and address (Supplier)
PDCR	v20	-	NADR	A	Name and address (Producer)
WOVC	u2	-	-	T	Water overruns, count

▪ common to both Lift and Dump Quotas:

```
QOTD.XSYS   External system support
QOTD.RREF   Row reference
```

Not used by TermLinx.

```
QOTD.CHGC   Change count
```

Incremented by the Local Host when it updates the row.

```
QOTD.STID   Site id
```

First component of primary key.

```
QOTD.CODE   Base quota number
```

Identifies the Quota to Head Office; uniqueness not enforced.

```
QOTD.QCFC   Quota confirmation code
QOTD.EFFD   Effective date and time
```

Last two components of primary key. QCFC is the text displayed to the Driver in the Quota drop-down list; this column is trimmed. EFFD may be null.

```
QOTD.EXPD   Expiration date and time
```

The Quota is valid only during the period from EFFD to EXPD. A NULL EFFD is deemed to be the beginning of time and a NULL EXPD the end of time. Different periods may be chosen for the same base Quota number by inserting multiple rows into this table. For any base Quota number, the row selected for the Driver's drop-down list is the one with the latest EFFD that has already arrived; if also EXPD has expired, the Quota is not selected. This scheme implements semi-permanent Quotas, in which an ongoing contract may undergo several changes throughout its life (for example, change of authorized Carrier); changes to Quotas may be downloaded comfortably ahead of time, and the changes automatically take effect upon the effective date.

```
QOTD.CFST   Quota configuration and status
```

** This is not a table column.

The booleans in this group select various options and show various status.

```
QOTD.MGNC   Emergency selection
```

Selectable for drop-down lists only if DRVR.MGNC or SITE.MGNC is set. Default is space.

```
QOTD.LKOT   Locked out
```

Disallows selection for the Driver's drop-down list. Default is space.

```
QOTD.ALCX   Disable allocation control
```

Allocation limits are not enforced. Default is space.

```
QOTD.OVRN   Allow allocation overrun on last use
```

May be used to distinguish allocations (true) from pre-bookings (false). Default is space.

```
QOTD.FOBR   FOB remote
```

Determines whether the "shipper" (the legal owner of the product during transport) is the Supplier (FOBR false) or the Receiver (FOBR true). Default is space.

```
QOTD.WOLK   Water overlimit lockout (Dump only)
```

Operations may set a limit on the number of high-water shutdowns allowed. When the limit is exceeded, TermLinx sets this flag, and clears it 24 hours later. Intended to prevent a Driver from dumping an entire wet load through repeated Transaction starts. Default is space.

```
QOTD.TMNT   Terminated
```

Set by TermLinx when:

(a) the Quota reaches its maximum use count;
(b) the draw against the Quota reaches or exceeds its allocation;
(c) the Quota has passed its expiration time.

Alterable by Head Office. Default is space.

```
QOTD.UPLD   Uploaded
```

Set non-zero by Head Office upon upload, and makes the Quota a candidate for purging by TermLinx (if TMNT is set and TMDT is sufficiently old). Default is 0.

```
QOTD.TMDT   Termination timestamp
```

Set by TermLinx when it sets TMNT. Alterable by Head Office.

```
QOTD.ACCT   Account number
```

For Head Office reference, as desired. Transactions not derived from a Quota (via Driver conversation) receive an "account number" between 1 and 99 determined by TermLinx or the PLC (see TRNS below). For Quota-derived Transactions, the "account number" is taken from this column. Default is 0.

```
QOTD.TCV1   Transaction control value 1
QOTD.TCV2   Transaction control value 2
QOTD.TCV3   Transaction control value 3
```

These values are transferred to the PLC for transactions authorized against this Quota, in order to provide the PLC with Quota-specific information for specialized control functions.

```
QOTD.CTNR   External contract number
```

For Head Office reference and printing on formal documents. This column is trimmed.

```
QOTD.CMNT   Comment
```

This is optional text associated with the Quota that is to be printed on formal documents. This column is trimmed.

```
QOTD.PRDC   Product code
```

Foreign reference to the Product implied by this Quota.

```
QOTD.CARR   Carrier code
QOTD.RLHR   Role of carrier hirer
```

Specifies the Carrier(s) authorized for this Quota, determined by evaluating the following rules in sequence. When the first condition is satisfied, further evaluation is halted. Items marked "[-]" are assertions only, and do not by themselves select Carriers or cause sequence termination:

(a) If CARR is non-NULL, it is a foreign reference to CARR, and RLHR is NULL; this Carrier is the only authorized Carrier.

[-] CARR is NULL, and RLHR is one of "NULL", "RCVR", "SPLR" and "PDCR". Note that the 4-character value "NULL" is distinct from a missing value which is said to be NULL.

(b) If table QDCX contains any rows that refer to this Quota, then the authorized Carriers are those given on those rows.

[-] Table QDCX does not exist, or contains no rows that refer to this Quota.

(c) If RLHR is "NULL", then all Carriers are authorized.

[-] RLHR is one of "RCVR", "SPLR" and "PDCR", which specifies the role of the entity that hired the Carrier (information obtainable from the contract).

(d) RLHR selects the corresponding NADR reference in the Quota, then both are applied through CHXR to determine the authorized Carriers. If RLHR is "PDCR", then QOTD.PDCR must not be NULL.

```
QOTD.PVST  Destination/source province/state code
QOTD.CITY  Destination/source city name
```

The city and jurisdiction of the source for this Quota, if known. If PVST is NULL, CITY is ignored.

```
QOTD.NUSE  Maximum allowed number of uses (0 unlimited)
```

Default is 0.

```
QOTD.ALIM  Allocation limit (0 unlimited)
```

Maximum volume draw against this Quota. Default is 0.

```
QOTD.AUSE  Allocation used
```

Total actual volume draw against this Quota. Compared to ALIM to determine allocation remaining. Default is 0.

```
QOTD.LUSD  Timestamp of last usage
```

Set by TermLinx.

```
QOTD.NUSD  Actual number of uses
```

Set by TermLinx. Default is 0.

- for dumpings:

```
QOTD.RCVR  Name and address (Receiver)
QOTD.SPLR  Name and address (Supplier)
QOTD.PDCR  Name and address (Producer)
```

Foreign references to NADR for the three primary roles in a Dumping contract. For each Dump Quota, SPLR is required, RCVR if NULL defaults to SITE.RCVR (which is then required), and if PDCR is NULL the Producer is determined by a drop-down list derived via SPXR.

```
QOTD.WOVC  Water overruns, count
```

Maintained by TermLinx. Default is 0. Currently not used.

5.6.14 QLCX-Lift-Quota-Carrier Cross-Reference

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
QCFC	v20	P	qotl	A	Quota confirmation code
CARR	v20	P	CARR	A	Carrier code

This optional table implements a simple system for determining the Lift Quotas authorized for the Drivers of a given Carrier. If the Carrier is not specified by the Quota directly, then the Quota is authorized if QLCX contains a row having a matching QOTL and a matching CARR, or if QLCX contains no rows with a matching QOTL and the Quota is authorized by table CHXR (below).

```
QLCX.XSYS  External system support
QLCX.RREF  Row reference
```

Not used by TermLinx.

```
QLCX.CHGC  Change count
```

Incremented by the Local Host when it updates the row.

```
QLCX.STID  Site id
QLCX.QCFC  Quota confirmation code
QLCX.CARR  Carrier code
```

Primary key.

5.6.15 QDCX-Dump-Quota-Carrier Cross-Reference

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
QCFC	v20	P	qotd	A	Quota confirmation code
CARR	v20	P	CARR	A	Carrier code

This optional table implements a simple system for determining the Dump Quotas authorized for the Drivers of a given Carrier. If the Carrier is not specified by the Quota directly, then the Quota is authorized if QDCX contains a row having a matching QOTD and a matching CARR, or if QDCX contains no rows with a matching QOTL and the Quota is authorized by table CHXR (below).

```
QDCX.XSYS  External system support
QDCX.RREF  Row reference
```

Not used by TermLinx.

```
QDCX.CHGC  Change count
```

Incremented by the Local Host when it updates the row.

```
QDCX.STID  Site id
QDCX.QCFC  Quota confirmation code
QDCX.CARR  Carrier code
```

Primary key.

5.6.16 CHXR-Carrier-Hirer Cross-Reference

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
CARR	v20	P	CARR	A	Carrier code
NADR	v20	P	NADR	A	Name and address (hirer)
RLHR	e	P	-	A	Role of carrier hirer

This table implements a flexible system for determining the Quotas authorized for the Drivers of a given Carrier. If the Carrier is not specified by the Quota directly, and if the Quota is not authorized by the QLCX or QDCX table, then the Quota is authorized if its RLHR contains the string "NULL" or if CHXR contains a row having a matching CARR, a matching RLHR, and a NADR matching the Quota's NADR reference selected by RLHR.

```
CHXR.XSYS   External system support
CHXR.RREF   Row reference
```

Not used by TermLinx.

```
CHXR.CHGC   Change count
```

Incremented by the Local Host when it updates the row.

```
CHXR.STID   Site id
CHXR.CARR   Carrier code
CHXR.NADR   Name and address (hirer)
CHXR.RLHR   Role of carrier hirer
```

Primary key. RLHR is one of "MKTR", "CSTR", "CNSG", "RCVR", "SPLR", "PDCR".

5.6.17 CCXR-Customer-Consignee Cross-Reference

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
CSTR	v20	P	NADR	A	Customer code
CNSG	v20	P	NADR	A	Consignee code

```
CCXR.XSYS   External system support
CCXR.RREF   Row reference
```

Not used by TermLinx.

```
CCXR.CHGC   Change count
```

Incremented by the Local Host when it updates the row.

```
CCXR.STID   Site id
CCXR.CSTR   Customer code
```

```
CCXR.CNSG  Consignee code
```

Primary key. A non-specific Lift Quota for this Customer may deliver to this Consignee.

5.6.18 SPXR-Supplier-Producer Cross-Reference

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
SPLR	v20	P	NADR	A	Supplier code
PDCR	v20	P	NADR	A	Producer code

```
SPXR.XSYS  External system support
SPXR.RREF  Row reference
```

Not used by TermLinx.

```
SPXR.CHGC  Change count
```

Incremented by the Local Host when it updates the row.

```
SPXR.STID  Site id
SPXR.SPLR  Supplier code
SPXR.PDCR  Producer code
```

Primary key. A non-specific Dump Quota for this Supplier may deliver from this Producer.

5.6.19 TXCP-Transaction Exception

Column	Type	LKey	FKey	Sr	Description
XSYS	n8	-	-	A	External system support
RREF	v20	-	-	A	Row reference
CHGC	u8	-	-	A	Change count
STID	v20	P	SITE	A	Site id
SEQN	u8	P	-	T	Sequence number
DUMP	c1	-	-	T	Direction (Lift/Dump)
DTPS	dt	-	-	T	Post timestamp
RJCD	u2	-	-	T	Transaction rejection code
QCFC	v20	-	qot*	D	Quota confirmation code

Most columns of this table derive their values from corresponding columns of TRNS. The foreign key reference to the QOTx table is "weak".

```
TXCP.XSYS  External system support
TXCP.RREF  Row reference
```

Not used by TermLinx.

```
TXCP.CHGC  Change count
```

Incremented by the Local Host when it updates the row.

```
TXCP.STID   Site id
TXCP.SEQN   Sequence number
```

Primary key. When the row is inserted by TermLinx itself, SEQN is that of the originating TRNS.

```
TXCP.DUMP   Direction (Lift/Dump)
TXCP.DTPS   Post timestamp
TXCP.RJCD   Transaction rejection code
TXCP.QCFC   Quota confirmation code
```

When the row is inserted by TermLinx itself, these columns are copies of the corresponding columns of the originating TRNS; see documentation of the TRNS table for detail. TermLinx copies a TRNS automatically only when RJCD is non-zero. When the row is inserted manually, no associated TRNS need exist, though the constraints on column values (as documented for TRNS) are still applicable.

5.6.20 CTRN-Current Transaction

Column	Type	LKey	FKey	Sr	Description
STID	v20	P	site	T	Site id
SEQN	u8	P	-	T	Sequence number
DUMP	c1	-	-	T	Direction (Lift/Dump)
TPTY	u1	-	-	T	Transaction posting type
ACST	u2	-	-	T	Transaction activity state
SPLT	u8	-	-	T	Split Transaction
ISLD	v15	-	isld	D	Island code
PRDC	v8	-	prdc	D	Product code
DSPC	v32	-	-	D	Product display code
BLND	u2	-	blnd	D	Blend code
ACCT	u4	-	-	D	Account number
RJCD	u2	-	-	T	Transaction rejection code
DTAR	dt	-	-	T	Arrival timestamp
DTST	dt	-	-	T	Start timestamp
TARE	u10	-	-	T	Measured train tare, g
AUZR	u8	-	-	D	Driver code, authorizer
AUZN	u8	-	drvr	D	Driver number, authorizer
MGNC	b	-	-	T	Driver emergency authority, authorizer
DRVR	u8	-	-	D	Driver code, shipper
DVNR	u8	-	drvr	D	Driver number, shipper
CARR	v20	-	carr	D	Carrier code
TRNR	u6	-	-	D	Vehicle train number
BTCH	u1	-	-	D	Batch number
VTRK	v10	-	vhcl	D	Tractor Vehicle code
TTAR	u9	-	-	D	Listed tare weight, tractor, kg
VHCL	v10	-	-	D	Vehicle code
VHCD	v10	-	vhcl	D	Vehicle display code

Column	Type	LKey	FKey	Sr	Description
EQPC	v10	-	-	D	Equipment class
EQPT	v10	-	-	D	Equipment type (subclass)
VTAR	u9	-	-	D	Listed tare weight, vessel, kg
VGRS	u9	-	-	D	Listed gross weight, vessel, kg
QOTA	u12	-	-	D	Quota number
QCFC	v20	-	qot*	D	Quota confirmation code
EFFD	dt	-	qot*	D	Quota effective date and time
CTNR	v40	-	-	D	External contract number
MKRC	v20	-	nadr	D	Marketer/Receiver
CSSP	v20	-	nadr	D	Customer/Supplier
CNPD	v20	-	nadr	D	Consignee/Producer
PVST	v6	-	pvst	D	Destination/source province/state code
CITY	v40	-	locn	D	Destination/source city name
FOBR	b	-	-	D	FOB remote
CTPO	v20	-	-	D	Customer purchase order number
ERVE	u8	-	-	D	Estimated/requested volume
DBOL	v20	-	-	D	Driver's BOL number (Dump only)
LDAR	dt	-	-	D	Load arrival timestamp (Dump only)
LDST	dt	-	-	D	Load start timestamp (Dump only)
LDEN	dt	-	-	D	Load end timestamp (Dump only)
TRCK	v10	-	vhcl	D	Truck number
TRL1	v10	-	vhcl	D	Trailer 1 number
TRL2	v10	-	vhcl	D	Trailer 2 number
RDBN	u3	-	-	D	Road ban %
BSWR	f	-	-	D	Sediment & water sample % (Dump only)

Most columns of this table give rise to the values of corresponding columns of TRNS. All foreign keys to the Accounting Database are "weak".

```
CTRN.STID   Site id
CTRN.SEQN   Sequence number
```

Primary key. SEQN is assigned sequentially upon Transaction creation, and is unrelated to the similarly-named column of the TRNS table; separate sequences are used for each.

```
CTRN.DUMP   Direction (Lift/Dump)
```

Distinguishes between Lift and Dump Transactions. This value is determined by the mode (Lift or Dump) selected during Transaction validation, which in turn constrains the selection of the island during Transaction activation. Values are "L" and "D", and non-NULL.

`CTRN.TPTY   Transaction posting type`

Indicates the original source of the Transaction. Values are:

`3-Accountable`

Transactions of this type are created through the usual Driver authorization, and represent normal custody-transfer Transactions.

`4-Documentable`

An accountable Transaction becomes documentable when flow has been initiated by the batch controller, indicating that a BOL or BOU must be made available to the Driver.

Only types 3 and 4 occur in the CTRN table; for other types, refer to the TRNS table. Value is never NULL.

`CTRN.ACST   Transaction activity state`

This code is used internally by TermLinx to track the stages through which the Transaction proceeds on its way to termination. If non-zero, the Transaction is not yet terminated; cleared to zero upon termination. Default is 0.

`CTRN.SPLT   Split Transaction`

If non-zero (and non-NULL), this Transaction was created as an almost-clone of another by a "Split Transaction" operation; the value is the sequence number TRNS.SEQN of the Transaction that was split.

`CTRN.ISLD   Island code`

Foreign reference to corresponding entry in the Operational Database ISLD "table".

`CTRN.PRDC   Product code`
`CTRN.DSPC   Product display code`

Foreign references to the relevant Product.

`CTRN.BLND   Blend code`

Extended from the selected row of the Product table.

`CTRN.ACCT   Account number`

This value is taken from QOT*.ACCT. Values 1 thru 99 should be used with care; see TRNS.ACCT.

`CTRN.RJCD   Transaction rejection code`

This code, assigned by TermLinx upon incomplete termination of the Transaction, gives the reason for Transaction termination. Default is 0.

`CTRN.DTAR   Arrival timestamp`
`CTRN.DTST   Start timestamp`
`CTRN.TARE   Measured train tare, g`

Assigned by TermLinx as Transaction progresses. The "arrival" timestamp is either the Driver's gate entry time if a gate is present, or the creation time of a Transaction record. The "start" timestamp is Transaction activation; "start" is NULL for a Transaction still on standby.

```
CTRN.AUZR   Driver code, authorizer
CTRN.AUZN   Driver number, authorizer
CTRN.MGNC   Driver emergency authority, authorizer
CTRN.DRVR   Driver code, shipper
CTRN.DVNR   Driver number, shipper
CTRN.CARR   Carrier code
CTRN.TRNR   Vehicle train number
CTRN.BTCH   Batch number
CTRN.VTRK   Tractor Vehicle code
CTRN.TTAR   Listed tare weight, tractor, kg
CTRN.VHCL   Vehicle code
CTRN.VHCD   Vehicle display code
CTRN.EQPC   Equipment class
CTRN.EQPT   Equipment type (subclass)
CTRN.VTAR   Listed tare weight, vessel, kg
CTRN.VGRS   Listed gross weight, vessel, kg
CTRN.QOTA   Quota number
CTRN.QCFC   Quota confirmation code
CTRN.EFFD   Quota effective date and time
CTRN.CTNR   External contract number
```

Assigned by drop-down list during Transaction validation. QOTA+EFFD and QCFC+EFFD are foreign references to the same row of either QOTL or QOTD (depending on the value of DUMP). MGNC is extended from the row of DRVR for the Driver that creates this transaction (AUZR/AUZN); if AUZR does not have MGNC, then DRVR = AUZR (and DVNR = AUZN), else DRVR/DVNR is selected from a drop-down list. For Sites or Modes that do not require Vehicle validation, VHCL/VHCD are null; any Vehicle references are then obtained via the Transaction Details screen and placed into CTRN.TRCK/TRL1/TRL2.

```
x    $$$ TRNR, BTCH, VTRK
CTRN.MKRC   Marketer/Receiver
CTRN.CSSP   Customer/Supplier
CTRN.CNPD   Consignee/Producer
```

Extended from the Quota or assigned by drop-down list during Transaction validation.

```
CTRN.PVST   Destination/source province/state code
CTRN.CITY   Destination/source city name
```

The city and jurisdiction of the destination (Lifting) or source (Dumping) of the product, extended from the Quota, selected from a drop-down list, or keyed in by the Driver. Violation of referential integrity to the LOCN table is specifically permitted.

```
CTRN.FOBR   FOB remote
```

Extended from QOT*.

```
CTRN.CTPO   Customer purchase order number
```

Extended from QOT*, or entered by the Driver. This column is trimmed.

```
CTRN.ERVE   Estimated/requested volume
```

Entered by the Driver. For Dumpings, "estimated" (entered in units of m3, possibly with a fractional part) may be used by the batch controller for flow control. For Liftings, "requested" (entered in units of liters) may also be limited by capacity and allocation constraints. Value is stored in the database in units of liters.

```
CTRN.DBOL   Driver's BOL number (Dump only)
```

For Dumpings, "Driver's BOL" is entered by the Driver as a link to the BOL from the TermLinx-issued BOU.

```
CTRN.LDAR   Load arrival timestamp (Dump only)
CTRN.LDST   Load start timestamp (Dump only)
CTRN.LDEN   Load end timestamp (Dump only)
```

Entered by the Driver, for Dumpings only. These are the times associated with the original lifting of the load.

```
CTRN.TRCK   Truck number
CTRN.TRL1   Trailer 1 number
CTRN.TRL2   Trailer 2 number
```

Foreign references to VHCL. These values, obtained via the Transaction Detail data entry screen, are requested only for Sites/Modes that do not require Vehicle validation. For such Sites, multiple compartments may be transferred via a single Transaction. When Vehicle validation is required, however, each compartment requires its own Transaction. Violation of referential integrity is specifically permitted.

```
CTRN.RDBN   Road ban %
CTRN.BSWR   Sediment & water sample % (Dump only)
```

Entered by the Driver.

5.6.21 TRNS-Transaction

▪ For all Transactions:

Column	Type	LKey	FKey	Sr	Description
STID	v20	P	site	T	Site id
SEQN	u8	P	-	T	Sequence number
DUMP	c1	-	-	T	Direction (Lift/Dump)
TPTY	u1	-	-	T	Transaction posting type
SPLT	u8	-	-	T	Split Transaction
DTPS	dt	-	-	T	Post timestamp
UPLD	n8	-	-	A	Uploaded
ISLD	v15	-	isld	D	Island code
PRDC	v8	-	prdc	D	Product code
DSPC	v32	-	-	D	Product display code
ACCT	u4	-	-	D	Account number
RJCD	u2	-	-	T	Transaction rejection code

- For all completed Transactions:

Column	Type	LKey	FKey	Sr	Description
TALM	u10	-	-	T	Transaction alarms, short
TLRM	v87	-	-	T	Transaction alarms, long
TKCD	d	-	-	T	Ticket date
TKCN	u8	-	-	T	Ticket number
MTOP	u10	-	-	T	Meter open
MTCL	u10	-	-	T	Meter close
MTCT	u10	-	-	T	Raw count
MTIC	u10	-	-	T	Indicated volume
MTGR	u10	-	-	T	Gross volume
MTGS	u10	-	-	T	Gross standard volume
MTVL	u10	-	-	T	Net volume
MTMS	u10	-	-	T	Mass
MTIJ	u10	-	-	T	Vapor injection
MTRY	u10	-	-	T	Vapor recovery
MTC2	u10	-	-	T	User accumulator C2
MTC1	u10	-	-	T	User accumulator C1
MTB5	u10	-	-	T	User accumulator B5
MTB4	u10	-	-	T	User accumulator B4
MTB3	u10	-	-	T	User accumulator B3
MTB2	u10	-	-	T	User accumulator B2
MTB1	u10	-	-	T	User accumulator B1
MTA5	u10	-	-	T	User accumulator A5
MTA4	u10	-	-	T	User accumulator A4
MTA3	u10	-	-	T	User accumulator A3
MTA2	u10	-	-	T	User accumulator A2
MTA1	u10	-	-	T	User accumulator A1
CLVP	u10	-	-	T	Net vapor recovery
CLLQ	u10	-	-	T	Vapor liquid equivalent
CLTL	u10	-	-	T	Total net volume
CLU2	u10	-	-	T	User calculation 2
CLU1	u10	-	-	T	User calculation 1
SWPC	f	-	-	T	Back-calculated sediment & water percent
LEQF	f	-	-	T	Vapor-to-liquid equivalence factor
DNSS	f	-	-	T	Blend standard density
PVTF	f	-	-	T	Process variable avg, flowing temperature
PVPF	f	-	-	T	Process variable avg, flowing pressure
PVDF	f	-	-	T	Process variable avg, flowing density
PVWF	f	-	-	T	Process variable avg, S&W percent
PVDS	f	-	-	T	Process variable avg, standard density

Column	Type	LKey	FKey	Sr	Description
PVU5	f	-	-	T	Process variable avg, user variable 5
PVU4	f	-	-	T	Process variable avg, user variable 4
PVU3	f	-	-	T	Process variable avg, user variable 3
PVU2	f	-	-	T	Process variable avg, user variable 2
PVU1	f	-	-	T	Process variable avg, user variable 1
CPT1	f	-	-	T	Component 1 amount
CPT2	f	-	-	T	Component 2 amount
CPT3	f	-	-	T	Component 3 amount
CPT4	f	-	-	T	Component 4 amount
CPT5	f	-	-	T	Component 5 amount
CPT6	f	-	-	T	Component 6 amount
CPT7	f	-	-	T	Component 7 amount
CPT8	f	-	-	T	Component 8 amount

▪ for all accountable Transactions:

Column	Type	Key	FKey	Sr	Description
DTAR	dt	-	-	T	Arrival timestamp
DTST	dt	-	-	T	Start timestamp
DTEN	dt	-	-	T	End timestamp
TARE	u10	-	-	T	Measured train tare, g
GROS	u10	-	-	T	Measured train gross, g
AUZR	u8	-	-	D	Driver code, authorizer
AUZN	u8	-	drvr	D	Driver number, authorizer
MGNC	b	-	-	T	Driver emergency authority, authorizer
DRVR	u8	-	-	D	Driver code, shipper
DVNR	u8	-	drvr	D	Driver number, shipper
CARR	v20	-	carr	D	Carrier code
TRNR	u6	-	-	D	Vehicle train number
BTCH	u1	-	-	D	Batch number
VTRK	v10	-	vhcl	D	Tractor Vehicle code
VHCL	v10	-	-	D	Vehicle code
VHCD	v10	-	vhcl	D	Vehicle display code
QOTA	u12	-	-	D	Quota number
QCFC	v20	-	qot*	D	Quota confirmation code
EFFD	dt	-	qot*	D	Quota effective date and time
CTNR	v40	-	-	D	External contract number
MKRC	v20	-	nadr	D	Marketer/Receiver
CSSP	v20	-	nadr	D	Customer/Supplier
CNPD	v20	-	nadr	D	Consignee/Producer
PVST	v6	-	pvst	D	Destination/source province/state code
CITY	v40	-	locn	D	Destination/source city name
FOBR	b	-	-	T	FOB remote
CTPO	v20	-	-	D	Customer purchase order number
ERVE	u8	-	-	D	Estimated/requested volume
DBOL	v20	-	-	D	Driver's BOL number (Dump only)

Column	Type	Key	FKey	Sr	Description
LDAR	dt	-	-	D	Load arrival timestamp (Dump only)
LDST	dt	-	-	D	Load start timestamp (Dump only)
LDEN	dt	-	-	D	Load end timestamp (Dump only)
TRCK	v10	-	vhcl	D	Truck number
TRL1	v10	-	vhcl	D	Trailer 1 number
TRL2	v10	-	vhcl	D	Trailer 2 number
RDBN	u3	-	-	D	Road ban %
BSWR	f	-	-	D	Sediment & water sample % (Dump only)
RFXP	long	-	-	T	Referential expansion

Note: Columns MTVP, MTLQ, MTTL, and MTC2 are only used with Entero.

Some columns of this table derive their values from corresponding columns of CTRN. All foreign keys to the Accounting Database are "weak".

- for all Transactions:

```
TRNS.STID   Site id
TRNS.SEQN   Sequence number
```

Primary key. SEQN is assigned sequentially upon Transaction termination, and bears no relationship to the similarly-named column of the CTRN table; separate sequences are used for each. SEQN also bears no relationship to the ticket number, if any, except for chronological correspondence.

```
TRNS.DUMP   Direction (Lift/Dump)
```

Distinguishes between Lift and Dump Transactions. For operational Transactions, this value is determined directly from the operational configuration of the island, which may be either Lift or Dump but not both. For accountable Transactions, this value is determined by the mode (Lift or Dump) selected during Transaction validation, which in turn constrains the selection of the island during Transaction activation. Values are "L" and "D", and non-NULL.

```
TRNS.TPTY   Transaction posting type
```

Indicates the original source of the Transaction. Values are:

```
1-Cold start
```

A marker Transaction is written for each island when TermLinx is started. Contains start-up values (for example, meter readings) obtained from the PLC.

```
2-Operational
```

The PLC, if suitably programmed, may create Transactions of this type independently of any Driver authorization; for example, proving a meter. Also, TermLinx itself creates an operational Transaction to report a product leak, which is unaccounted flow outstanding at the time of starting a Driver-authorized Transaction.

```
3-Accountable
```

Transactions of this type are created through the usual Driver authorization, and represent normal custody-transfer Transactions.

```
4-Documentable
```

An accountable Transaction becomes documentable when flow has been initiated by the batch controller, indicating that a BOL or BOU must be made available to the Driver.

```
5-Quota termination
```

When a Quota is automatically terminated, a marker transaction is written which identifies it, populating these columns only:

```
SEQN-from TRNSPKSQNC, TRNS primary key sequence generator
STID-from QOTx.STID, site id
QOTA-from QOTx.QOTA, quota code
QCFC-from QOTx.QCFC, quota confirmation code
EFFD-from QOTx.EFFD, effective date
DTPS-timestamp of termination
TPTY-= 5
DUMP-"L" or "D" for Lift or Dump respectively
RJCD-indicates terminator and condition causing termination:
    3-by kernel (DLL), number of uses exhausted: NUSD >= NUSE
    2-by kernel (DLL), allocation exhausted: AUSE >= ALIM
    1-by kernel (DLL), duration expiration: now >= EXPD
    0-by stored procedure, duration expiration: now >= EXPD
FOBR-from QOTx.FOBR, FOB remote
ACCT-from QOTx.ACCT, account number
CTNR-from QOTx.CTNR, external contract number
PRDC-from QOTx.PRDC or as completed, product code
MTVL-from QOTx.AUSE, allocation used
MTCT-from QOTx.NUSD, actual number of uses
MKRC-from QOTL.MKTR/QOTD.RCVR or as completed, marketer/receiver
```

When a quota is terminated by the kernel (RJCD non-zero), the termination of the quota occurs upon termination of a transaction that used that quota. In this case, certain columns (PRDC, MKRC) acquire the values used for the transaction, which are the quota values completed by the rules of selection applied during creation of the transaction. For example, if the MKTR of a terminated QOTL is null, then the MKRC of the type 5 transaction will be null if the quota was terminated by the stored procedure, but will be the value of STRF.MKTR if the quota was terminated by the kernel. Furthermore, the kernel tests quota termination conditions in descending order of RJCD, terminating the quota upon the first condition satisfied. The kernel's site task invokes the quota-termination stored procedures at a frequency of approximately one hour; these procedures test only the duration expiration condition, but do so for all unterminated quotas.

Posting types 1 and 5 do not represent product flow. Types 3 and 4 arise from the CTRN table. Value is never NULL.

```
TRNS.SPLT  Split Transaction
```

If non-zero (and non-NULL), this Transaction was created as an almost-clone of another by a "Split Transaction" operation; the value is the sequence number TRNS.SEQN of the Transaction that was split.

`TRNS.DTPS   Post timestamp`

Timestamp of Transaction posting. Written when the Transaction is terminated and its row in TRNS is created.

`TRNS.UPLD   Uploaded`

Set non-zero by Head Office upon upload, and makes the Transaction a candidate for purging by TermLinx (if DTPS is sufficiently old). Default is 0.

`TRNS.ISLD   Island code`

Foreign reference to corresponding entry in the Operational Database ISLD "table".

`TRNS.PRDC   Product code`
`TRNS.DSPC   Product display code`

Foreign references to the relevant Product.

`TRNS.ACCT   Account number`

For accountable (or documentable) Transactions, this value is taken from QOT*.ACCT. For operational Transactions, however, this number is determined by the TMS software (TermLinx and the PLC program). TermLinx has reserved account numbers 1 thru 9 for TermLinx-created transactions (TermLinx assigns account number 2 to product leaks) and 10 thru 99 for PLC-created transactions.

`TRNS.RJCD   Transaction rejection code`

This code, assigned by TermLinx upon incomplete termination of the Transaction, gives the reason for Transaction termination. Default is 0.

▪ for all completed Transactions:

`TRNS.TALM   Transaction alarms, short`
`TRNS.TLRM   Transaction alarms, long`

These codes, taken from the PLC when the completed Transaction is posted, are not used by TermLinx, but let the PLC (or batch controller) attach to the Transaction additional information, such as alarms, or the reason for Transaction termination. For an AccuLoad batch controller, these codes contain a bitmap of the cumulative AccuLoad alarms over the duration of the Transaction; TALM contains the first 32 alarm bits (numbered according to AccuLoad documentation) as an unsigned long integer, and TLRM contains the first 64 alarm bits (numbered according to AccuLoad documentation) as a character string showing the bit settings for each of eight bytes.

`TRNS.TKCD   Ticket date`

The date on which the Transaction is deemed to have occurred for accounting purposes, based on the "end-of-day hour" configuration in the Operational database; it is the same as the posting date for a midnight end-of-day. Assigned upon termination of a completed Transaction.

`TRNS.TKCN   Ticket number`

Every complete Transaction representing product flow receives a sequential ticket number upon termination. Not every such Transaction is documentable, which may cause gaps in the BOL/BOU numbering sequence. Liftings and Dumpings have separate ticket number series.

```
TRNS.MTOP  Meter open
TRNS.MTCL  Meter close
TRNS.MTCT  Raw count
TRNS.MTIC  Indicated volume
TRNS.MTGR  Gross volume
TRNS.MTGS  Gross standard volume
TRNS.MTVL  Net volume
TRNS.MTMS  Mass
TRNS.MTIJ  Vapor injection
TRNS.MTRY  Vapor recovery
TRNS.MTC2  User accumulator C2
TRNS.MTC1  User accumulator C1
TRNS.MTB5  User accumulator B5
TRNS.MTB4  User accumulator B4
TRNS.MTB3  User accumulator B3
TRNS.MTB2  User accumulator B2
TRNS.MTB1  User accumulator B1
TRNS.MTA5  User accumulator A5
TRNS.MTA4  User accumulator A4
TRNS.MTA3  User accumulator A3
TRNS.MTA2  User accumulator A2
TRNS.MTA1  User accumulator A1
TRNS.CLVP  Net vapor recovery
TRNS.CLLQ  Vapor liquid equivalent
TRNS.CLTL  Total net volume
TRNS.CLU2  User calculation 2
TRNS.CLU1  User calculation 1
```

Metered amounts for this Transaction. The first 22 items are taken from the PLC; the last 5 items are calculated from the others. Scalable amounts are scaled to the highest possible precision: volumes in liters and mass in grams; other quantities are not scaled. Values not provided by the batch controller may not be present; however, MTVL, and consequently CLTL, are always present. The three groups of user accumulators correspond to three of the "accumulator classes" of the operational configuration, for which different operational characteristics may be specified. Additives injected by external batch controllers (such as an AccuLoad) are recorded in the MTAx accumulators.

```
TRNS.SWPC  Back-calculated sediment & water percent
```

The S&W content, back-calculated from MTGS and MTVL.

```
TRNS.LEQF  Vapor-to-liquid equivalence factor
```

The product of the liquid-equivalence factor for the blend (taken from the PLC at the time of Transaction posting) and the liquid-equivalence scale factor (taken from the operational configuration file). CLLQ is calculated as the product of CLVP and this value.

```
TRNS.DNSS  Blend standard density
```

The density of the blend at standard conditions, taken from the PLC at the time of Transaction posting.

```
TRNS.PVTF   Process-variable average, flowing temperature
TRNS.PVPF   Process-variable average, flowing pressure
TRNS.PVDF   Process-variable average, flowing density
TRNS.PVWF   Process-variable average, S&W percent
TRNS.PVDS   Process-variable average, standard density
TRNS.PVU5   Process-variable average, user variable 5
TRNS.PVU4   Process-variable average, user variable 4
TRNS.PVU3   Process-variable average, user variable 3
TRNS.PVU2   Process-variable average, user variable 2
TRNS.PVU1   Process-variable average, user variable 1
```

Average values of the process variables for this Transaction. Values not required by the user may not be present.

```
TRNS.CPT1   Component 1 amount
TRNS.CPT2   Component 2 amount
TRNS.CPT3   Component 3 amount
TRNS.CPT4   Component 4 amount
TRNS.CPT5   Component 5 amount
TRNS.CPT6   Component 6 amount
TRNS.CPT7   Component 7 amount
TRNS.CPT8   Component 8 amount
```

Items available for reporting details of Product composition; for example, molar fraction component analysis of NGL Dumpings, or additives injected into refined-product Liftings such as mercaptan.

▪ for all accountable Transactions:

```
TRNS.ADJ1   Adjustment #1
TRNS.ADJ2   Adjustment #2
```

Available for recording minor adjustments for the purpose of printing formal documents. For example, the Crystal Reports "report format file" that controls the printing of a Bill of Lading might print the text "INVALID BOL" for a load of propane that receives insufficient odorant. Sufficient odorant can then be injected manually into the already completed load, the amount entered into one of these columns, and the report format file can be programmed to consider this to permit the BOL to be reprinted without that notation. These columns are editable by authorized personnel, in contrast to all other columns (except UPLD) which are not editable and contain a permanent record of the details of the Transaction. The default value is 0 for both columns.

```
TRNS.DTAR   Arrival timestamp
TRNS.DTST   Start timestamp
TRNS.DTEN   End timestamp
TRNS.TARE   Measured train tare, g
TRNS.GROS   Measured train gross, g
```

Assigned by TermLinx as Transaction progresses. The "arrival" timestamp is that of the Driver's gate entry if a gate is present, or is that of the creation of the Transaction record otherwise. The "start" and "end" timestamps are those of the actual Lifting/Dumping operation.

```
TRNS.AUZR   Driver code, authorizer
TRNS.AUZN   Driver number, authorizer
TRNS.MGNC   Driver emergency authority, authorizer
TRNS.DRVR   Driver code, shipper
TRNS.DVNR   Driver number, shipper
TRNS.CARR   Carrier code
TRNS.TRNR   Vehicle train number
TRNS.BTCH   Batch number
TRNS.VTRK   Tractor Vehicle code
TRNS.VHCL   Vehicle code
TRNS.VHCD   Vehicle display code
TRNS.QOTA   Quota number
TRNS.QCFC   Quota confirmation code
TRNS.EFFD   Quota effective date and time
TRNS.CTNR   External contract number
```

Assigned by drop-down list during Transaction validation. QOTA+EFFD and QCFC+EFFD are foreign references to the same row of either QOTL or QOTD (depending on the value of DUMP). MGNC is extended from the row of DRVR for the Driver that creates this transaction (AUZR/AUZN); if AUZR does not have MGNC, then DRVR = AUZR (and DVNR = AUZN), else DRVR/DVNR is selected from a drop-down list. For Sites or Modes that do not require Vehicle validation, VHCL/VHCD are null; any Vehicle references are then obtained via the Transaction Details screen and placed into TRNS.TRCK/TRL1/TRL2.

```
x    $$$ TRNR, BTCH
TRNS.MKRC   Marketer/Receiver
TRNS.CSSP   Customer/Supplier
TRNS.CNPD   Consignee/Producer
```

Extended from the Quota or assigned by drop-down list during Transaction validation.

```
TRNS.PVST   Destination/source province/state code
TRNS.CITY   Destination/source city name
```

The city and jurisdiction of the destination (Lifting) or source (Dumping) of the product, extended from the Quota, selected from a drop-down list, or keyed in by the Driver.

```
TRNS.FOBR   FOB remote
```

Extended from QOT*.

```
TRNS.CTPO   Customer purchase order number
```

Extended from QOT*, or entered by the Driver. This column is trimmed.

```
TRNS.ERVE   Estimated/requested volume
```

Entered by the Driver. For Dumpings, "estimated" (entered in units of m3, possibly with a fractional part) may be used by the batch controller for flow control. For Liftings, "requested" (entered in units of liters) may also be limited by capacity and allocation constraints. Value is stored in the database in units of liters.

```
TRNS.DBOL   Driver's BOL number (Dump only)
```

For Dumpings, "Driver's BOL" is entered by the Driver as a link to the BOL from the TermLinx-issued BOU.

```
TRNS.LDAR   Load arrival timestamp (Dump only)
TRNS.LDST   Load start timestamp (Dump only)
TRNS.LDEN   Load end timestamp (Dump only)
```

Entered by the Driver, for Dumpings only. These are the times associated with the original lifting of the load.

```
TRNS.TRCK   Truck number
TRNS.TRL1   Trailer 1 number
TRNS.TRL2   Trailer 2 number
```

Foreign references to VHCL. These values, obtained via the Transaction Detail data entry screen, are requested only for Sites/Modes that do not require Vehicle validation. For such Sites, multiple compartments may be transferred via a single Transaction. When Vehicle validation is required, however, each compartment requires its own Transaction.

```
TRNS.RDBN   Road ban %
TRNS.BSWR   Sediment & water sample % (Dump only)
```

Entered by the Driver.

```
TRNS.RFXP   Referential expansion
```

Created by TermLinx when the Transaction is terminated. Formal documents are generated from this information, which is a snapshot of all relevant parts of the Accounting Database at the time of posting.

5.6.22 RTRN-Report Transaction

Column	Type	LKey	FKey	Sr	Description
STID	v20	P	site	T	Site id
SEQN	u8	P	-	T	Sequence number
DUMP	c1	-	-	T	Direction (Lift/Dump)
PRDC	v8	-	prdc	D	Product code
DSPC	v32	-	-	D	Product display code
TKCD	d	-	-	T	Ticket date
TKCN	u8	-	-	T	Ticket number
DNSS	f	-	-	T	Blend standard density
AUZR	u8	-	-	D	Driver code, authorizer
AUZN	u8	-	drvr	D	Driver number, authorizer
MGNC	b	-	-	T	Driver emergency authority, authorizer
DRVR	u8	-	-	D	Driver code, shipper
DVNR	u8	-	drvr	D	Driver number, shipper
CARR	v20	-	carr	D	Carrier code
TRNR	u6	-	-	D	Vehicle train number
VTRK	v10	-	vhcl	D	Tractor Vehicle code
QOTA	u12	-	-	D	Quota number
QCFC	v20	-	qot*	D	Quota confirmation code
EFFD	dt	-	qot*	D	Quota effective date and time
CTNR	v40	-	-	D	External contract number

Column	Type	LKey	FKey	Sr	Description
MKRC	v20	-	nadr	D	Marketer/Receiver
CSSP	v20	-	nadr	D	Customer/Supplier
CNPD	v20	-	nadr	D	Consignee/Producer
PVST	v6	-	pvst	D	Destination/source province/state code
CITY	v60	-	locn	D	Destination/source city name
FOBR	b	-	-	T	FOB remote
CTPO	v20	-	-	D	Customer purchase order number
DBOL	v20	-	-	D	Driver's BOL number (Dump only)
LDAR	dt	-	-	D	Load arrival timestamp (Dump only)
LDST	dt	-	-	D	Load start timestamp (Dump only)
LDEN	dt	-	-	D	Load end timestamp (Dump only)
TRCK	v10	-	vhcl	D	Truck number
TRL1	v10	-	vhcl	D	Trailer 1 number
TRL2	v10	-	vhcl	D	Trailer 2 number
RDBN	u3	-	-	D	Road ban %
MTIC	u10	-	-	T	Total: Indicated volume
MTGR	u10	-	-	T	Total: Gross volume
MTGS	u10	-	-	T	Total: Gross standard volume
MTVL	u10	-	-	T	Total: Net volume
MTMS	u10	-	-	T	Total: Mass
MTIJ	u10	-	-	T	Total: Vapor injection
MTRY	u10	-	-	T	Total: Vapor recovery
MTWT	u10	-	-	T	Total: Water volume
MTC1	u10	-	-	T	Total: User accumulator C1
MTB5	u10	-	-	T	Total: User accumulator B5
MTB4	u10	-	-	T	Total: User accumulator B4
MTB3	u10	-	-	T	Total: User accumulator B3
MTB2	u10	-	-	T	Total: User accumulator B2
MTB1	u10	-	-	T	Total: User accumulator B1
MTA5	u10	-	-	T	Total: User accumulator A5
MTA4	u10	-	-	T	Total: User accumulator A4
MTA3	u10	-	-	T	Total: User accumulator A3
MTA2	u10	-	-	T	Total: User accumulator A2
MTA1	u10	-	-	T	Total: User accumulator A1
CLVP	u10	-	-	T	Total: Net vapor recovery
CLLQ	u10	-	-	T	Total: Vapor liquid equivalent
CLTL	u10	-	-	T	Total: Total net volume
CLU2	u10	-	-	T	Total: User calculation 2
CLU1	u10	-	-	T	Total: User calculation 1
ERVE	u8	-	-	D	Total: Estimated/requested volume

Column	Type	LKey	FKey	Sr	Description
SWPC	f	-	-	T	Average: Back-calculated sediment & water percent
LEQF	f	-	-	T	Average: Vapor-to-liquid equivalence factor
PVTF	f	-	-	T	Average: Process variable avg, flowing temperature
PVPF	f	-	-	T	Average: Process variable avg, flowing pressure
PVDF	f	-	-	T	Average: Process variable avg, flowing density
PVWF	f	-	-	T	Average: Process variable avg, S&W percent
PVDS	f	-	-	T	Average: Process variable avg, standard density
PVU5	f	-	-	T	Average: Process variable avg, user variable 5
PVU4	f	-	-	T	Average: Process variable avg, user variable 4
PVU3	f	-	-	T	Average: Process variable avg, user variable 3
PVU2	f	-	-	T	Average: Process variable avg, user variable 2
PVU1	f	-	-	T	Average: Process variable avg, user variable 1
BSWR	f	-	-	D	Average: Sediment & water sample % (Dump only)
CPT1	f	-	-	T	Total: Component 1 amount
CPT2	f	-	-	T	Total: Component 2 amount
CPT3	f	-	-	T	Total: Component 3 amount
CPT4	f	-	-	T	Total: Component 4 amount
CPT5	f	-	-	T	Total: Component 5 amount
CPT6	f	-	-	T	Total: Component 6 amount
CPT7	f	-	-	T	Total: Component 7 amount
CPT8	f	-	-	T	Total: Component 8 amount
ADJ1	f	-	-	T	Total: Adjustment #1
ADJ2	f	-	-	T	Total: Adjustment #2
DTAR	dt	-	-	T	Minimum: Arrival timestamp
DTST	dt	-	-	T	Minimum: Start timestamp
DTEN	dt	-	-	T	Maximum: End timestamp
TARE	u10	-	-	T	Minimum: Measured train tare
GROS	u10	-	-	T	Maximum: Measured train gross
STRF_NAME	v60	-	-	A	Site: Name
STRF_ADR1	v60	-	-	A	Site: Address line 1
STRF_ADR2	v60	-	-	A	Site: Address line 2
STRF_CITY	v60	-	-	A	Site: City name
STRF_PVST	v6	-	-	A	Site: Province/state code
STRF_PZIP	v10	-	-	A	Site: Postal/zip code
STRF_TELE	v18	-	-	A	Site: Telephone number
STRF_ATTN	v20	-	-	A	Site: To the attention of…
SOPR_NAME	v60	-	-	A	Site Operator: Name
SOPR_ADR1	v60	-	-	A	Site Operator: Address line 1

Column	Type	LKey	FKey	Sr	Description
SOPR_ADR2	v60	-	-	A	Site Operator: Address line 2
SOPR_CITY	v60	-	-	A	Site Operator: City name
SOPR_PVST	v6	-	-	A	Site Operator: Province/state code
SOPR_PZIP	v10	-	-	A	Site Operator: Postal/zip code
SOPR_TELE	v18	-	-	A	Site Operator: Telephone number
SOPR_ATTN	v20	-	-	A	Site Operator: To the attention of ...
DRVR_NAME	v60	-	-	A	Driver: Name
TRNS_VTRK	v10	-	vhcl	D	Tractor Vehicle code
TRNS_TTAR	u9	-	-	D	Listed tare weight, tractor
PRDC_DSC1	v64	-	-	A	Product: Description line 1
PRDC_DSC2	v64	-	-	A	Product: Description line 2
PRDC_DSC3	v64	-	-	A	Product: Description line 3
PRDC_DSC4	v64	-	-	A	Product: Description line 4
PRDC_DSC5	v64	-	-	A	Product: Description line 5
PRDC_DSC6	v64	-	-	A	Product: Description line 6
PRDC_DSC7	v64	-	-	A	Product: Description line 7
PRDC_DSC8	v64	-	-	A	Product: Description line 8
PRDC_DSC9	v64	-	-	A	Product: Description line 9
PRDC_DSCA	v64	-	-	A	Product: Description line 10
PRDC_CHTC	v16	-	-	A	Product: Customs harmonized Tariff code
PRDC_PRBC	v20	-	-	A	Product: Bar code
QOTA_CMNT	v80	-	-	A	Quota: Comment
CARR_NAME	v60	-	-	A	Carrier: Name
CARR_ADR1	v60	-	-	A	Carrier: Address line 1
CARR_ADR2	v60	-	-	A	Carrier: Address line 2
CARR_CITY	v60	-	-	A	Carrier: City name
CARR_PVST	v6	-	-	A	Carrier: Province/state code
CARR_PZIP	v10	-	-	A	Carrier: Postal/zip code
CARR_TELE	v18	-	-	A	Carrier: Telephone number
CARR_ATTN	v20	-	-	A	Carrier: To the attention of ...
MKRC_NAME	v60	-	-	A	Marketer/Receiver: Name
MKRC_ADR1	v60	-	-	A	Marketer/Receiver: Address line 1
MKRC_ADR2	v60	-	-	A	Marketer/Receiver: Address line 2
MKRC_CITY	v60	-	-	A	Marketer/Receiver: City name
MKRC_PVST	v6	-	-	A	Marketer/Receiver: Province/state code
MKRC_PZIP	v10	-	-	A	Marketer/Receiver: Postal/zip code
MKRC_TELE	v18	-	-	A	Marketer/Receiver: Telephone number
MKRC_ATTN	v20	-	-	A	Marketer/Receiver: To the attention of ...
CSSP_NAME	v60	-	-	A	Customer/Supplier: Name
CSSP_ADR1	v60	-	-	A	Customer/Supplier: Address line 1

Column	Type	LKey	FKey	Sr	Description
CSSP_ADR2	v60	-	-	A	Customer/Supplier: Address line 2
CSSP_CITY	v60	-	-	A	Customer/Supplier: City name
CSSP_PVST	v6	-	-	A	Customer/Supplier: Province/state code
CSSP_PZIP	v10	-	-	A	Customer/Supplier: Postal/zip code
CSSP_TELE	v18	-	-	A	Customer/Supplier: Telephone number
CSSP_ATTN	v20	-	-	A	Customer/Supplier: To the attention of ...
CNPD_NAME	v60	-	-	A	Consignee/Producer: Name
CNPD_ADR1	v60	-	-	A	Consignee/Producer: Address line 1
CNPD_ADR2	v60	-	-	A	Consignee/Producer: Address line 2
CNPD_CITY	v60	-	-	A	Consignee/Producer: City name
CNPD_PVST	v6	-	-	A	Consignee/Producer: Province/state code
CNPD_PZIP	v10	-	-	A	Consignee/Producer: Postal/zip code
CNPD_TELE	v18	-	-	A	Consignee/Producer: Telephone number
CNPD_ATTN	v20	-	-	A	Consignee/Producer: To the attention of ...
DTAR_HM	v5	-	-	T	Minimum: Arrival time
DTST_HM	v5	-	-	T	Minimum: Start time
DTEN_HM	v5	-	-	T	Maximum: End time
MTMS_KG	u10	-	-	T	Total: Mass
TARE_KG	u10	-	-	T	Minimum: Measured train tare
GROS_KG	u10	-	-	T	Maximum: Measured train gross
DTRP	dt	-	-	T	Report timestamp
DTRP_DT	v10	-	-	T	Report date, yyyy/mm/dd
DTRP_HM	v5	-	-	T	Report time, hh:mm

All columns of this table derive their values from corresponding columns of the collection of rows of TRNS that are applicable to the formal document that is being prepared. All foreign keys are "weak".

The information herein includes:

- Accounting and other identifying information that is common to all batches of the ticket.
- Total accumulated quantities over all batches of the ticket.
- Weighted averages of process variables over all batches of the ticket.

```
RTRN.STID   Site id
RTRN.SEQN   Sequence number
```

Primary key. Both columns are copied directly from the row of TRNS initially selected for printing of its ticket; see documentation of the TRNS table for details. For a multiple-batch ticket several rows of TRNS are included, but only one of those has this SEQN.

```
RTRN.DUMP  Direction (Lift/Dump)
RTRN.PRDC  Product code
RTRN.DSPC  Product display code
RTRN.TKCD  Ticket date
RTRN.TKCN  Ticket number
RTRN.DNSS  Blend standard density
RTRN.AUZR  Driver code, authorizer
RTRN.AUZN  Driver number, authorizer
RTRN.MGNC  Driver emergency authority, authorizer
RTRN.DRVR  Driver code, shipper
RTRN.DVNR  Driver number, shipper
RTRN.CARR  Carrier code
RTRN.TRNR  Vehicle train number
RTRN.VTRK  Tractor Vehicle code
RTRN.QOTA  Quota number
RTRN.QCFC  Quota confirmation code
RTRN.EFFD  Quota effective date and time
RTRN.CTNR  External contract number
RTRN.MKRC  Marketer/Receiver
RTRN.CSSP  Customer/Supplier
RTRN.CNPD  Consignee/Producer
RTRN.PVST  Destination/source province/state code
RTRN.CITY  Destination/source city name
RTRN.FOBR  FOB remote
RTRN.CTPO  Customer purchase order number
```

All columns are copied directly from the row of TRNS initially selected for printing of its ticket; see documentation of the TRNS table for details. For a multiple-batch ticket several rows of TRNS are included, but all will have the same information in these columns (unless CTPO has been overridden using the Transaction Detail feature).

```
RTRN.DBOL  Driver's BOL number (Dump only)
RTRN.LDAR  Load arrival timestamp (Dump only)
RTRN.LDST  Load start timestamp (Dump only)
RTRN.LDEN  Load end timestamp (Dump only)
RTRN.TRCK  Truck number
RTRN.TRL1  Trailer 1 number
RTRN.TRL2  Trailer 2 number
RTRN.RDBN  Road ban %
```

All columns are copied directly from the row of TRNS initially selected for printing of its ticket; see documentation of the TRNS table for details. For a multiple-batch ticket several rows of TRNS are included, in which this information could be different for each as it is entered manually using the Transaction Detail feature, but only the information from the initially selected TRNS is copied here.

```
RTRN.MTIC  Total: Indicated volume
RTRN.MTGR  Total: Gross volume
RTRN.MTGS  Total: Gross standard volume
RTRN.MTVL  Total: Net volume
RTRN.MTMS  Total: Mass
RTRN.MTIJ  Total: Vapour injection
RTRN.MTRY  Total: Vapour recovery
RTRN.MTWT  Total: Water volume
RTRN.MTC1  Total: User accumulator C1
RTRN.MTB5  Total: User accumulator B5
```

```
RTRN.MTB4   Total: User accumulator B4
RTRN.MTB3   Total: User accumulator B3
RTRN.MTB2   Total: User accumulator B2
RTRN.MTB1   Total: User accumulator B1
RTRN.MTA5   Total: User accumulator A5
RTRN.MTA4   Total: User accumulator A4
RTRN.MTA3   Total: User accumulator A3
RTRN.MTA2   Total: User accumulator A2
RTRN.MTA1   Total: User accumulator A1
RTRN.CLVP   Total: Net vapour recovery
RTRN.CLLQ   Total: Vapour liquid equivalent
RTRN.CLTL   Total: Total net volume
RTRN.CLU2   Total: User calculation 2
RTRN.CLU1   Total: User calculation 1
RTRN.ERVE   Total: Estimated/requested volume
```

These columns acquire the sum of the corresponding columns of all rows of TRNS selected for the ticket, that is, the sum over all batches of the ticket; see documentation of the TRNS table for details.

```
RTRN.SWPC   Average: Back-calculated sediment & water percent
RTRN.LEQF   Average: Vapour-to-liquid equivalence factor
RTRN.PVTF   Average: Process variable avg, flowing temperature
RTRN.PVPF   Average: Process variable avg, flowing pressure
RTRN.PVDF   Average: Process variable avg, flowing density
RTRN.PVWF   Average: Process variable avg, S&W percent
RTRN.PVDS   Average: Process variable avg, standard density
RTRN.PVU5   Average: Process variable avg, user variable 5
RTRN.PVU4   Average: Process variable avg, user variable 4
RTRN.PVU3   Average: Process variable avg, user variable 3
RTRN.PVU2   Average: Process variable avg, user variable 2
RTRN.PVU1   Average: Process variable avg, user variable 1
RTRN.BSWR   Average: Sediment & water sample % (Dump only)
```

These columns acquire the weighted average of the corresponding columns of all rows of TRNS selected for the ticket, that is, the sum over all batches of the ticket; see documentation of the TRNS table for details. The weighting factor is the value of the MTVL column.

```
RTRN.CPT1   Total: Component 1 amount
RTRN.CPT2   Total: Component 2 amount
RTRN.CPT3   Total: Component 3 amount
RTRN.CPT4   Total: Component 4 amount
RTRN.CPT5   Total: Component 5 amount
RTRN.CPT6   Total: Component 6 amount
RTRN.CPT7   Total: Component 7 amount
RTRN.CPT8   Total: Component 8 amount
RTRN.ADJ1   Total: Adjustment #1
RTRN.ADJ2   Total: Adjustment #2
```

These columns acquire the sum of the corresponding columns of all rows of TRNS selected for the ticket, that is, the sum over all batches of the ticket; see documentation of the TRNS table for details.

```
RTRN.DTAR  Minimum: Arrival timestamp
RTRN.DTST  Minimum: Start timestamp
```

These columns acquire the minimum of the corresponding columns of all rows of TRNS selected for the ticket, that is, the earliest timestamps of all batches of the ticket; see documentation of the TRNS table for details.

```
RTRN.DTEN  Maximum: End timestamp
```

This column acquires the maximum of the corresponding columns of all rows of TRNS selected for the ticket, that is, the latest timestamp of all batches of the ticket; see documentation of the TRNS table for details.

```
RTRN.TARE  Minimum: Measured train tare
```

This column acquires the minimum of the corresponding columns of all rows of TRNS selected for the ticket, that is, the smallest tare weight of all batches of the ticket; see documentation of the TRNS table for details.

```
RTRN.GROS  Maximum: Measured train gross
```

This column acquires the maximum of the corresponding columns of all rows of TRNS selected for the ticket, that is, the largest gross weight of all batches of the ticket; see documentation of the TRNS table for details.

```
RTRN.STRF_NAME  Site: Name
RTRN.STRF_ADR1  Site: Address line 1
RTRN.STRF_ADR2  Site: Address line 2
RTRN.STRF_CITY  Site: City name
RTRN.STRF_PVST  Site: Province/state code
RTRN.STRF_PZIP  Site: Postal/zip code
RTRN.STRF_TELE  Site: Telephone number
RTRN.STRF_ATTN  Site: To the attention of ...
```

These columns contain the name and address details for the Site, as they were at the time of the transaction.

```
RTRN.SOPR_NAME  Site Operator: Name
RTRN.SOPR_ADR1  Site Operator: Address line 1
RTRN.SOPR_ADR2  Site Operator: Address line 2
RTRN.SOPR_CITY  Site Operator: City name
RTRN.SOPR_PVST  Site Operator: Province/state code
RTRN.SOPR_PZIP  Site Operator: Postal/zip code
RTRN.SOPR_TELE  Site Operator: Telephone number
RTRN.SOPR_ATTN  Site Operator: To the attention of ...
```

These columns contain the name and address details for the Site Operator, as they were at the time of the transaction.

```
RTRN.DRVR_NAME  Driver: Name
```

This column contains the name of the Driver, as it was at the time of the transaction.

```
RTRN.TRNS_VTRK  Tractor Vehicle code
RTRN.TRNS_TTAR  Listed tare weight, tractor
```

These columns contain details for the tractor of the vehicle train, as they were at the time of the transaction.

```
RTRN.PRDC_DSC1  Product: Description line 1
RTRN.PRDC_DSC2  Product: Description line 2
RTRN.PRDC_DSC3  Product: Description line 3
RTRN.PRDC_DSC4  Product: Description line 4
RTRN.PRDC_DSC5  Product: Description line 5
RTRN.PRDC_DSC6  Product: Description line 6
RTRN.PRDC_DSC7  Product: Description line 7
RTRN.PRDC_DSC8  Product: Description line 8
RTRN.PRDC_DSC9  Product: Description line 9
RTRN.PRDC_DSCA  Product: Description line 10
RTRN.PRDC_CHTC  Product: Customs harmonized tariff code
RTRN.PRDC_PRBC  Product: Bar code
```

These columns contain details for the Product, as they were at the time of the transaction.

```
RTRN.QOTA_CMNT  Quota: Comment
```

This column contains the value of the CMNT column of the quota used for the transaction, as it was at the time of the transaction.

```
RTRN.CARR_NAME  Carrier: Name
RTRN.CARR_ADR1  Carrier: Address line 1
RTRN.CARR_ADR2  Carrier: Address line 2
RTRN.CARR_CITY  Carrier: City name
RTRN.CARR_PVST  Carrier: Province/state code
RTRN.CARR_PZIP  Carrier: Postal/zip code
RTRN.CARR_TELE  Carrier: Telephone number
RTRN.CARR_ATTN  Carrier: To the attention of ...
```

These columns contain the name and address details for the Carrier, as they were at the time of the transaction.

```
RTRN.MKRC_NAME  Marketer/Receiver: Name
RTRN.MKRC_ADR1  Marketer/Receiver: Address line 1
RTRN.MKRC_ADR2  Marketer/Receiver: Address line 2
RTRN.MKRC_CITY  Marketer/Receiver: City name
RTRN.MKRC_PVST  Marketer/Receiver: Province/state code
RTRN.MKRC_PZIP  Marketer/Receiver: Postal/zip code
RTRN.MKRC_TELE  Marketer/Receiver: Telephone number
RTRN.MKRC_ATTN  Marketer/Receiver: To the attention of ...
```

These columns contain the name and address details for the Marketer (for mode Lift) or Receiver (for mode Dump), as they were at the time of the transaction.

```
RTRN.CSSP_NAME  Customer/Supplier: Name
RTRN.CSSP_ADR1  Customer/Supplier: Address line 1
RTRN.CSSP_ADR2  Customer/Supplier: Address line 2
RTRN.CSSP_CITY  Customer/Supplier: City name
RTRN.CSSP_PVST  Customer/Supplier: Province/state code
RTRN.CSSP_PZIP  Customer/Supplier: Postal/zip code
RTRN.CSSP_TELE  Customer/Supplier: Telephone number
RTRN.CSSP_ATTN  Customer/Supplier: To the attention of ...
```

These columns contain the name and address details for the Customer (for mode Lift) or Supplier (for mode Dump), as they were at the time of the transaction.

```
RTRN.CNPD_NAME   Consignee/Producer: Name
RTRN.CNPD_ADR1   Consignee/Producer: Address line 1
RTRN.CNPD_ADR2   Consignee/Producer: Address line 2
RTRN.CNPD_CITY   Consignee/Producer: City name
RTRN.CNPD_PVST   Consignee/Producer: Province/state code
RTRN.CNPD_PZIP   Consignee/Producer: Postal/zip code
RTRN.CNPD_TELE   Consignee/Producer: Telephone number
RTRN.CNPD_ATTN   Consignee/Producer: To the attention of ...
```

These columns contain the name and address details for the Consignee (for mode Lift) or Producer (for mode Dump), as they were at the time of the transaction.

```
RTRN.DTAR_HM     Minimum: Arrival time
RTRN.DTST_HM     Minimum: Start time
RTRN.DTEN_HM     Maximum: End time
```

These columns contain the hours & minutes portions of the timestamps in the columns of RTRN having the same names without the "_HN". Format of each is "hh:mm".

```
RTRN.MTMS_KG     Total: Mass
RTRN.TARE_KG     Minimum: Measured train tare
RTRN.GROS_KG     Maximum: Measured train gross
```

The values in these columns are the values of the columns of RTRN having the same names without the "_KG", but divided by 1000.

```
RTRN.DTRP Report timestamp
RTRN.DTRP_DT     Report date, yyyy/mm/dd
RTRN.DTRP_HM     Report time, hh:mm
```

These columns contain the reporting date and time (the moment of populating the Temporary Database) in various forms.

5.6.23 BTCn-Batch n

Note: Applies to BTC1 through BTC 9.

Column	Type	LKey	FKey	Sr	Description
STID	v20	P	site	T	Site id
SEQN	u8	P	-	T	Sequence number, selected
SEQT	u8	-	-	T	Sequence number, batch
TPTY	u1	-	-	T	Transaction posting type
SPLT	u8	-	-	T	Split Transaction
DTPS	dt	-	-	T	Post timestamp
ISLD	v15	-	isld	D	Island code
PHSI	n2	-	isld	D	Physical island number
ACCT	u4	-	-	D	Account number
RJCD	u2	-	-	T	Transaction rejection code
TALM	u10	-	-	T	Transaction alarms, short
TLRM	v87	-	-	T	Transaction alarms, long
MTOP	u10	-	-	T	Meter open

Column	Type	LKey	FKey	Sr	Description
MTCL	u10	-	-	T	Meter close
MTCT	u10	-	-	T	Raw count
MTIC	u10	-	-	T	Indicated volume
MTGR	u10	-	-	T	Gross volume
MTGS	u10	-	-	T	Gross standard volume
MTVL	u10	-	-	T	Net volume
MTMS	u10	-	-	T	Mass
MTIJ	u10	-	-	T	Vapor injection
MTRY	u10	-	-	T	Vapor recovery
MTWT	u10	-	-	T	Water volume
MTC1	u10	-	-	T	User accumulator C1
MTB5	u10	-	-	T	User accumulator B5
MTB4	u10	-	-	T	User accumulator B4
MTB3	u10	-	-	T	User accumulator B3
MTB2	u10	-	-	T	User accumulator B2
MTB1	u10	-	-	T	User accumulator B1
MTA5	u10	-	-	T	User accumulator A5
MTA4	u10	-	-	T	User accumulator A4
MTA3	u10	-	-	T	User accumulator A3
MTA2	u10	-	-	T	User accumulator A2
MTA1	u10	-	-	T	User accumulator A1
CLVP	u10	-	-	T	Net vapor recovery
CLLQ	u10	-	-	T	Vapor liquid equivalent
CLTL	u10	-	-	T	Total net volume
CLU2	u10	-	-	T	User calculation 2
CLU1	u10	-	-	T	User calculation 1
SWPC	f	-	-	T	Back-calculated sediment & water percent
LEQF	f	-	-	T	Vapor-to-liquid equivalence factor
PVTF	f	-	-	T	Process variable avg, flowing temperature
PVPF	f	-	-	T	Process variable avg, flowing pressure
PVDF	f	-	-	T	Process variable avg, flowing density
PVWF	f	-	-	T	Process variable avg, S&W percent
PVDS	f	-	-	T	Process variable avg, standard density
PVU5	f	-	-	T	Process variable avg, user variable 5
PVU4	f	-	-	T	Process variable avg, user variable 4
PVU3	f	-	-	T	Process variable avg, user variable 3
PVU2	f	-	-	T	Process variable avg, user variable 2
PVU1	f	-	-	T	Process variable avg, user variable 1
CPT1	f	-	-	T	Component 1 amount
CPT2	f	-	-	T	Component 2 amount

Column	Type	LKey	FKey	Sr	Description
CPT3	f	-	-	T	Component 3 amount
CPT4	f	-	-	T	Component 4 amount
CPT5	f	-	-	T	Component 5 amount
CPT6	f	-	-	T	Component 6 amount
CPT7	f	-	-	T	Component 7 Amount
CPT8	f	-	-	T	Component 8 Amount
ADJ1	f	-	-	T	Adjustment #1
ADJ2	f	-	-	T	Adjustment #2
DTAR	dt	-	-	T	Arrival timestamp
DTST	dt	-	-	T	Start timestamp
DTEN	dt	-	-	T	End timestamp
TARE	u10	-	-	T	Measured train tare
GROS	u10	-	-	T	Measured train gross
BTCH	u1	-	-	D	Batch number
VHCL	v10	-	-	D	Vehicle code
VHCD	v10	-	vhcl	D	Vehicle display code
ERVE	u8	-	-	D	Estimated/requested volume
BSWR	f	-	-	D	Sediment & water sample % (Dump only)
VHCL_EQPC	v10	-	-	A	Vehicle: Equipment class
VHCL_EQPT	v10	-	-	A	Vehicle: Equipment type (subclass)
VHCL_CPCY	u8	-	-	A	Vehicle: Capacity
TRNS_VTAR	u9	-	-	T	Listed tare weight, vessel
TRNS_VGRS	u9	-	-	T	Listed gross weight, vessel
DTAR_HM	v5	-	-	T	Arrival time
DTST_HM	v5	-	-	T	Start time
DTEN_HM	v5	-	-	T	End time
MTMS_KG	u10	-	-	T	Mass
TARE_KG	u10	-	-	T	Measured train tare
GROS_KG	u10	-	-	T	Measured train gross

All columns of these tables derive their values from corresponding columns of the particular row of TRNS for the corresponding numbered batch on the formal document that is being prepared. All foreign keys are "weak".

The information herein consists of only that information specific to the batch, such as:

- Accumulated quantities for the batch.
- Average process variables for the batch.
- Load (unload) point information for the batch.

```
BTCn.STID   Site id
BTCn.SEQN   Sequence number, selected
```

Primary key. Both columns are copied directly from the row of TRNS initially selected for printing of its ticket; see documentation of the TRNS table for details. For a multiple-batch ticket several rows of TRNS are included, but only one of those has this SEQN.

```
BTCn.SEQT   Sequence number, batch
```

This column is copied directly from the SEQN column of the single row of TRNS that records this batch; (SITE,SEQT) of this row of BTCn is the primary key (SITE,SEQN) of the originating TRNS.

```
BTCn.TPTY   Transaction posting type
BTCn.SPLT   Split Transaction
BTCn.DTPS   Post timestamp
BTCn.ISLD   Island code
BTCn.PHSI   Physical island number
BTCn.ACCT   Account number
BTCn.RJCD   Transaction rejection code
BTCn.TALM   Transaction alarms, short
BTCn.TLRM   Transaction alarms, long
BTCn.MTOP   Meter open
BTCn.MTCL   Meter close
BTCn.MTCT   Raw count
BTCn.MTIC   Indicated volume
BTCn.MTGR   Gross volume
BTCn.MTGS   Gross standard volume
BTCn.MTVL   Net volume
BTCn.MTMS   Mass
BTCn.MTIJ   Vapour injection
BTCn.MTRY   Vapour recovery
BTCn.MTWT   Water volume
BTCn.MTC1   User accumulator C1
BTCn.MTB5   User accumulator B5
BTCn.MTB4   User accumulator B4
BTCn.MTB3   User accumulator B3
BTCn.MTB2   User accumulator B2
BTCn.MTB1   User accumulator B1
BTCn.MTA5   User accumulator A5
BTCn.MTA4   User accumulator A4
BTCn.MTA3   User accumulator A3
BTCn.MTA2   User accumulator A2
BTCn.MTA1   User accumulator A1
BTCn.CLVP   Net vapour recovery
BTCn.CLLQ   Vapour liquid equivalent
BTCn.CLTL   Total net volume
BTCn.CLU2   User calculation 2
BTCn.CLU1   User calculation 1
BTCn.SWPC   Back-calculated sediment & water percent
BTCn.LEQF   Vapour-to-liquid equivalence factor
BTCn.PVTF   Process variable avg, flowing temperature
BTCn.PVPF   Process variable avg, flowing pressure
BTCn.PVDF   Process variable avg, flowing density
BTCn.PVWF   Process variable avg, S&W percent
BTCn.PVDS   Process variable avg, standard density
```

```
BTCn.PVU5   Process variable avg, user variable 5
BTCn.PVU4   Process variable avg, user variable 4
BTCn.PVU3   Process variable avg, user variable 3
BTCn.PVU2   Process variable avg, user variable 2
BTCn.PVU1   Process variable avg, user variable 1
BTCn.CPT1   Component 1 amount
BTCn.CPT2   Component 2 amount
BTCn.CPT3   Component 3 amount
BTCn.CPT4   Component 4 amount
BTCn.CPT5   Component 5 amount
BTCn.CPT6   Component 6 amount
BTCn.CPT7   Component 7 amount
BTCn.CPT8   Component 8 amount
BTCn.ADJ1   Adjustment #1
BTCn.ADJ2   Adjustment #2
BTCn.DTAR   Arrival timestamp
BTCn.DTST   Start timestamp
BTCn.DTEN   End timestamp
BTCn.TARE   Measured train tare
BTCn.GROS   Measured train gross
BTCn.BTCH   Batch number
BTCn.VHCL   Vehicle code
BTCn.VHCD   Vehicle display code
BTCn.ERVE   Estimated/requested volume
BTCn.BSWR   Sediment & water sample % (Dump only)
```

These columns are copied directly from the corresponding columns of the single row of TRNS that records this batch; see documentation of the TRNS table for details.

```
BTCn.VHCL_EQPC   Vehicle: Equipment class
BTCn.VHCL_EQPT   Vehicle: Equipment type (subclass)
BTCn.VHCL_CPCY   Vehicle: Capacity
BTCn.TRNS_VTAR   Listed tare weight, vessel
BTCn.TRNS_VGRS   Listed gross weight, vessel
```

These columns contain details for the Vehicle used as a container for the batch, as they were at the time of the transaction. See documentation of the VHCL table for details. The "listed weight" columns, TRNS_VTAR and TRNS_VGRS, derive from VHCL columns TARE and GROS respectively.

```
BTCn.DTAR_HM     Minimum: Arrival time
BTCn.DTST_HM     Minimum: Start time
BTCn.DTEN_HM     Maximum: End time
```

These columns contain the hours & minutes portions of the timestamps in the columns of BTCn having the same names without the "_HN". Format of each is "hh:mm".

```
BTCn.MTMS_KG     Total: Mass
BTCn.TARE_KG     Minimum: Measured train tare
BTCn.GROS_KG     Maximum: Measured train gross
```

The values in these columns are the values of the columns of BTCn having the same names without the "_KG", but divided by 1000.

5.7 Discussion Points

Record locking and database integrity

A lock of any record in the TermLinx database must be of predictably short duration, so as not to delay any Driver conversation.

TermLinx implements a scheme of sequencing the state of a Transaction, so that at each stage of the conversation database integrity is preserved.

for example,

(a) create Transaction, assigning Driver (and Carrier)

(b) assign Quota

(c) assign Island

and so on.

Between state changes (that is, while the Driver is making the next selection) database updates from Head Office are unrestricted. In cases where the Driver makes a selection from a drop-down list created according to validation criteria, while a simultaneous Head Office update invalidates the Driver's selection, TermLinx revalidates the Driver's selection and, upon failure, displays "Your selection is no longer valid; please make another", rebuilds the drop-down list, and repeats the selection procedure.

End of Day, Effective Date, and Timestamps

The operational "end-of-day hour" EODH is a carryover from earlier systems in which Transactions were deemed to belong to an accounting "day" which ended at EODH; all activity between midnight and EODH was deemed for accounting purposes to have occurred on the previous day. Most stand-alone dates in the system (as opposed to timestamps which include the time) were "effective" dates, which began at EODH on the date concerned and ran to EODH on the following date. An "effective" date is the same as the calendar date only if EODH is zero.

The only occurrence of EODH in this version of TermLinx is the Transaction "ticket date", TRNS.TKCD, which is the "effective" date of the Transaction posting timestamp, TRNS.DTPS.

5.8   Example - Adding Multiple Carriers

The value in the Lift Quota Table's RLHR (Role of Carrier Hirer) column determines the carrier.


```
QOTL.CARR   Carrier code
QOTL.RLHR   Role of carrier hirer
```

Specifies the Carrier(s) authorized for this Quota, determined by evaluating the following rules in sequence. When the first condition is satisfied, further evaluation is halted. Items marked "[-]" are assertions only, and do not by themselves select Carriers or cause sequence termination:

(a) If CARR is non-NULL, it is a foreign reference to CARR, and RLHR is NULL; this Carrier is the only authorized Carrier.

[-] CARR is NULL, and RLHR is one of "NULL", "MKTR", "CSTR" and "CNSG". Note that the 4-character value "NULL" is distinct from a missing value which is said to be NULL.

(b) If table QLCX contains any rows that refer to this Quota, then the authorized Carriers are those given on those rows.

[-] Table QLCX does not exist, or contains no rows that refer to this Quota.

(c) If RLHR is "NULL", then all Carriers are authorized.

[-] RLHR is one of "MKTR", "CSTR" and "CNSG", which specifies the role of the entity that hired the Carrier (information obtainable from the contract).

(d) RLHR selects the corresponding NADR reference in the Quota, then both are applied through CHXR to determine the authorized Carriers. If RLHR is "CNSG", then QOTL.CNSG must not be NULL.

6   Reference

In This Chapter

6.1   PLC Interface File Structure & Program Tags

6.1.1   Gate control

MCK1 Keypad Modbus map

The MCK1 Keypad module provides data entry and display capabilities through an optional keypad with an LED display, and optional card reader and LCD display. All inputs and outputs are available to a host system through a mapping into a Modbus holding register table, for which the keypad acts as a Modbus slave. The following table describes this mapping, giving for each point its offset (holding register number as packaged in a Modbus message), a suggested base tag, whether the point is protected (read-only), and a description.

Ofs		P	Descr
00	....	P	Firmware product code
			For OLink-MDE1, the characters "D1", with the "D" in the low-order byte.
01	....	P	Firmware version number
			For this version of OLink-MDE1, the value 0x0100.
02	....	P	Firmware serial number
			The serial number of your registered OLink PROM.
03	....		Modbus slave address
			1 thru 247, default 239. If 0 is written, the slave address remains unchanged.

Ofs	P	Descr
04	.... .	Port configuration

Bit	Descr
0 to 2	baud code
	000 ignore this port configuration
	001 300 baud (ignore for BLxxxx)
	010 600 baud (ignore for BLxxxx)
	011 1200 baud
	100 2400 baud
	101 4800 baud
	110 9600 baud
	111 19200 baud
3 to 4	parity: 00 none, 01 odd, 10 even, 11 none
5	data bits: 0 => 8, 1 => 7
6	stop bits: 0 => 1, 1 => 2
7	mode: 0 RTU, 1 Ascii
	This version of OLink uses Ascii mode only, and ignores the setting of this bit.
8	electrical protocol: 0 RS-232, 1 RS-485
9 to F	[reserved]

Ofs	P	Descr
05	.... .	Transmit delay
		Milliseconds of delay between end of receipt of Modbus poll and start of transmission of Modbus response. Used to give an RS-485 Modbus master time to drop its transmitter before OLink energizes its own transmitter for the response.
06	.... .	
07	.... .	
08	.... .	Maximum number of digits in unsecure and secure keypad entries
		An unsecure keypad entry is one that may be echoed in the clear to an associated LCD display, and a secure keypad entry is one that may be echoed as asterisks or similar substitute character to such a display.
		The low-order byte specifies the unsecure data length, and the high-order byte the secure data length.
		Each value may be 0 thru 9, where 0 means that the corresponding entry is not required. If both values are 0, the keypad is not in use.
09	.... .	
10	.... .	
11	.... .	
12	.... .	
13	.... .	
14	.... .	
15	.... .	
16	.... .	
17	.... .	
18	.... .	
19	.... .	
20	.... .	Digital I/O direction, LSW

Ofs		P	Descr
21	....	.	Digital I/O direction, MSW
			For each of up to 32 I/O lines, the direction of data transfer, where 0 is output and 1 is input. Lines are numbered starting at line 0x00 at LSW bit 0 and ending at line 0x1F at MSW bit 15. Some I/O lines are dedicated to internal functions of OLink, and any configuration or use of those lines through this Modbus table is ineffective; see documentation elsewhere of line availability.
22	....	.	Digital output pulse polarity, LSW
23	....	.	Digital output pulse polarity, MSW
			For each of up to 32 output lines, the polarity of the pulse configured in the following table, where 0 is pulse high and 1 is pulse low. In this configuration, and in any other configuration or control of digital output lines, any specification for lines whose direction is configured as input is ignored and has no effect.
24	....	.	Digital output pulse width, lines 00 and 01
			These points allow those I/O lines configured for the output direction to be pulsed under OLink's control, instead of requiring the host to implement the pulse using two separate commands. Each byte contains a pulse duration in units of 10ms, where the low-order byte configures the even-numbered line and the high-order byte the odd-numbered line, and a value of 0 means a non-pulsed output. For example, if the pulse duration is 5 and the pulse polarity is 0, and the host sets the output to 1, then OLink holds the output to 1 for 50ms then automatically drops it to 0.
25	....	.	Digital output pulse width, lines 02 and 03
26	....	.	Digital output pulse width, lines 04 and 05
27	....	.	Digital output pulse width, lines 06 and 07
28	....	.	Digital output pulse width, lines 08 and 09
29	....	.	Digital output pulse width, lines 0A and 0B
30	....	.	Digital output pulse width, lines 0C and 0D
31	....	.	Digital output pulse width, lines 0E and 0F
32	....	.	Digital output pulse width, lines 10 and 11
33	....	.	Digital output pulse width, lines 12 and 13
34	....	.	Digital output pulse width, lines 14 and 15
35	....	.	Digital output pulse width, lines 16 and 17
36	....	.	Digital output pulse width, lines 18 and 19
37	....	.	Digital output pulse width, lines 1A and 1B
38	....	.	Digital output pulse width, lines 1C and 1D
39	....	.	Digital output pulse width, lines 1E and 1F
40	....	.	
41	....	.	
42	....	.	
43	....	.	
44	....	P	Digital input, LSW
45	....	P	Digital input, MSW
			For each of up to 32 I/O lines, the actual value read at the pin.
46	....	.	Digital output mask, LSW

Ofs		P	Descr
47	....	.	Digital output mask, MSW
			For each of up to 32 output lines, a 1 indicates that the corresponding bit in the following "output data" points is to be latched to the output line, and a 0 indicates that the corresponding output line is to remain unchanged. Upon latching the output, OLink clears the mask to 0.
48	....	.	Digital output data, LSW
49	....	.	Digital output data, MSW
			For each of up to 32 output lines, the data value to be latched to the output under the "output mask" above.
50	....	P	Keypad entry timestamp, LSW
51	....	P	Keypad entry timestamp, MSW
			These two points are the encoded timestamp of the keypad entry.
52	....	P	Unsecure keypad entry, LSW
53	....	P	Unsecure keypad entry, MSW
			These two points are the two halves of a 32-bit quantity.
54	....	P	Secure keypad entry, LSW
55	....	P	Secure keypad entry, MSW
			These two points are the two halves of a 32-bit quantity.
56	....	.	Keypad data signal
			Upon entry of either or both (as configured) unsecure and secure keypad entries, OLink sets the low-order byte to non-zero. The Modbus master, which polls for keypad entries, sees this point become non-zero, validates the keypad data, and acknowledges the data by writing back zero into this point along with the LED and buzzer controls that follow.
57	....	.	Keypad green LED control
			The low-order byte contains the duration of the green keypad LED response to an acknowledged poll, in seconds. If positive, the LED is steady; if negative, the LED blinks. The high-order byte is ignored.
58	....	.	Keypad red LED control
			The low-order byte contains the duration of the red keypad LED response to an acknowledged poll, in seconds. If positive, the LED is steady; if negative, the LED blinks. The high-order byte is ignored.
59	....	.	Keypad buzzer control
			The low-order byte contains the duration of the keypad buzzer response to an acknowledged poll, in seconds. If positive, buzzing is steady; if negative, buzzing is intermittent. The high-order byte is ignored.
60	....	P	Card reader entry timestamp, LSW
61	....	P	Card reader entry timestamp, MSW
			These two points are the encoded timestamp of the card reader entry.
62	....	P	Card reader entry, w 0
63	....	P	Card reader entry, w 1
64	....	P	Card reader entry, w 2

Ofs		P	Descr
65	....	P	Card reader entry, w 3
			These four points are the data read from the presented card. The lowest-order data is placed into word 0, proceeding into further words as the data becomes more significant. Any unfilled space is padded with zeros, up to the top of word 3.
66	....	.	Card reader data signal
			Upon capture of the data from a presented card, OLink sets the low-order byte to non-zero. The Modbus master, which polls for card reader entries, sees this point become non-zero, validates the card data, and acknowledges the data by writing back zero into this point along with the LED and buzzer controls that follow.
67	....	.	Card reader green LED control
			The low-order byte contains the duration of the green card reader LED response to an acknowledged poll, in seconds. If positive, the LED is steady; if negative, the LED blinks. The high-order byte is ignored.
68	....	.	Card reader red LED control
			The low-order byte contains the duration of the red card reader LED response to an acknowledged poll, in seconds. If positive, the LED is steady; if negative, the LED blinks. The high-order byte is ignored.
69	....	.	Card reader buzzer control
			If positive, buzzing is steady; if negative, buzzing is intermittent. The high-order byte is ignored.
			The low-order byte contains the duration of the card reader buzzer response to an acknowledged poll, in seconds
70	....	.	Message data signal
			The Modbus master sets the low-order byte to non-zero when instructing the device to display a message on the LCD. OLink latches the message and clears this point to acknowledge it.
71	....	.	Message number
			The low-order byte contains the number of the canned message to be displayed, or 0 to specify that the text of a custom message follows. The high-order byte is ignored.
72	....	.	Message text line 1, w 0
			The text of a custom message to be displayed on line 1 of the LCD, stopping when a NUL character (hex 00) is seen or all 20 characters have been displayed. Each word contains up to two characters, with the first (leftmost) character in the low-order byte.
73	....	.	Message text line 1, w 1
74	....	.	Message text line 1, w 2
75	....	.	Message text line 1, w 3
76	....	.	Message text line 1, w 4
77	....	.	Message text line 1, w 5
78	....	.	Message text line 1, w 6
79	....	.	Message text line 1, w 7
80	....	.	Message text line 1, w 8
81	....	.	Message text line 1, w 9

Ofs	P		Descr
82	....	.	Message text line 2, w 0
			The text of a custom message to be displayed on line 2 of the LCD, stopping when a NUL character (hex 00) is seen or all 20 characters have been displayed. Each word contains up to two characters, with the first (leftmost) character in the low-order byte.
83	....	.	Message text line 2, w 1
84	....	.	Message text line 2, w 2
85	....	.	Message text line 2, w 3
86	....	.	Message text line 2, w 4
87	....	.	Message text line 2, w 5
88	....	.	Message text line 2, w 6
89	....	.	Message text line 2, w 7
90	....	.	Message text line 2, w 8
91	....	.	Message text line 2, w 9
92	....	.	
93	....	.	
94	....	.	
95	....	.	
96	....	.	
97	....	.	
98	....	.	
99	....	.	

6.2   Contents and Handling of TermLinx' "Blend" Blocks

Each product transferable at the site is represented by a row in the PRDC table of the TermLinx Accounting Database. These entries are linked to product-specific entries in the PLC via the BLND column of the table, which is an index (1-based) into an array of up to 32 "Blend" blocks in each of the Site Integer and Float files of the TermLinx PLC allocation. The PLC programmer configures different behaviors for the different blends by entering values into these arrays.

Contents of PLC "Blend" blocks

(a) Two such, integer (in N-files) and float (in F-files)

(1) Integer

Address	Size	Contents
N:+0	2	Blend PLC Options
		Reserved for use by the PLC for blend-specific settings. Contents and meaning are determined solely by the PLC; TermLinx transfers/copies this information to/within the island files as it does with all blend information, but does not use these values in any other way.
N:+2	2	Batch Controller Program
		Supplies blend-specific information to the Batch Controller for the island; format depends on the Batch Controller configured. At present, only the AccuLoad Batch Controller uses this information; see below.

(2) Float

Address	Size	Contents
F:+0	1	Vapor-to-Liquid-Equivalent Factor
		In unloading configurations in which vapor transfer is measured, this factor converts the net vapor recovery (vapor return less vapor injected) to liquid equivalent for inclusion in the Transaction net total. Enter the number of base volume units of liquid that condense from 1000 base volume units of vapor, where the vapor volume is measured at reference conditions: for SI, liters of liquid from cubic meters of vapor; for US, gallons of liquid from MCF of vapor.
F:+1 x	1	Standard Density
		If the Batch Controller is configured to "Allow W&M Download", and if this value is non-zero, this value is downloaded to the Batch Controller just prior to batch authorization for its use in calculating measurement correction factors. Units depend on the API Table selection configured to the AccuLoad; refer to the relevant AccuLoad model's Operator's Reference for information.

Batch Controller Program for AccuLoad

For the AccuLoad Batch Controller, the format of the Batch Controller Program is:

Address	Size	Contents
N:+2	1	Additive Bitmap
		This bitmap selects the additives to be injected by the AccuLoad, which information is downloaded to the AccuLoad during batch authorization. Bits are numbered by additive from the low-order end; bit 0 selects additive #1, bit 1 selects additive #2, and so on. Selection is limited by the number of additives supported by the AccuLoad model and further limited by the wordsize of the bitmap, so the maximum number of additives supported by TermLinx for each AccuLoad model is:
		Model Additives
		AUT 4
		STD 4
		III-S 12
		III-X 15
		Furthermore, a TermLinx transaction can record volumes for only the first 5 additives. To disable explicit additive selection and allow the selection programmed into the AccuLoad to take effect, set bit 15.
N:+3	1	API Table Select & Recipe Select
		Bits 0 to 3: API Table Select
		Bits 4 to 7: [reserved] Reserved for future use.
		Bits 8 to 15: Recipe Select
		For those AccuLoad models that permit/enforce recipe selection, this is the recipe number to be downloaded during batch authorization. Maximum value depends on the AccuLoad model:
		Model Recipes
		III-S 12
		III-X 50
		If more than one recipe is enabled to the AccuLoad, then to avoid the "Select Recipe" prompt a recipe **must** be configured here.

6.3   Network Communications Protocol for Database Transfer

This section describes how to synchronize a site database with the head office database.

6.3.1 Platform

TermLinx is hosted on the trucker's HMI under Microsoft Windows, built around an Oracle database. All the necessary standard connectivity over Ethernet and modem dial-up connections is provided by the operating system and/or the DBMS, with additional capabilities provided by third-party applications.

6.3.2 Communication Procedure

Head Office communicates with TermLinx, for database maintenance and transaction retrieval, just as it would with any other remote DBMS, using standard tools for inter-database connectivity.

Head Office initiates all access to TermLinx, at times selected by Head Office. We use the term "download" to mean any session of access to TermLinx by Head Office that performs changes and additions to TermLinx's database, and "upload" to mean any retrieval of completed transactions or expired quotas.

TermLinx restricts Head Office to actions that do not compromise the integrity of the TermLinx database. The restrictions include constraints upon the database specified as part of its definition, and access restrictions based upon the user doing the access.

Refer to the database schematics for the tables and columns of the database that are visible to an outside user (for example, Head Office).

Head Office receives acknowledgement of receipt and disposition by TermLinx of changes to its database through the standard SQL return code. Timestamping of downloaded changes (or uploaded transactions) is a function of Head Office rather than TermLinx, and is outside the scope of this document.

6.3.3 Database Refresh

For any database table that is fully maintainable by Head Office, Head Office may issue two kinds of downloads:

- Partial download: changes, additions, and deletions of specified rows.
- Full download: complete replacement of the entire table.

A full download is impractical, because it would break any references to the table from other tables and would thus violate the essential integrity constraint on the database.

In order to facilitate Head Office-only management requirements, TermLinx reserves a column in each table for Head Office use (column XSYS of type NUMERIC). Head Office may then implement a full download as:

- Set the value of XSYS to 1 for all rows.

- ▪ Perform a partial download, adding/changing rows that are to be in the new table, and setting XSYS in each such row to 0.
- ▪ Delete all rows for which XSYS has the value 1.

6.3.4 Transaction Upload

Head Office periodically uploads transactions from TermLinx, typically transactions that have not been uploaded previously. To help Head Office keep track of which transactions have been uploaded, TermLinx defines a "spare" column for Head Office's use (UPLD) of numeric type. Transactions created by TermLinx set the value of this column to 0. Head Office may then, for example, mark uploaded transactions with a non-zero value, and upload "all new" ones by querying for all those whose value is 0.

Updates to the values in this column are the *only* changes of the transaction table that may be performed directly by an external system.

TermLinx purges its transaction table on either a monthly or daily basis (as configured during system setup). A monthly purge removes all transactions that are older than the previous calendar month, so that at least one month's transactions are guaranteed to remain on file for possible (re)uploading. A daily purge removes all transactions that are older than a (configured) number of days. In either case, only transactions marked "uploaded" (UPLD non-zero) are purged.

6.3.5 Quota Management

A quota table, which represents a time-and allocation-dependent contract for product lifting or dumping, is used for both transaction validation and for tracking the progress of the contract. Hence the quota table has attributes of both "normal" lookup tables (relatively static, changed only upon command) and process-record tables (dynamic, with new rows added at the "recent" end and old ones purged at the "ancient" end).

TermLinx implements the quota table with attributes of both "normal" tables and the transaction table: Quota rows may be inserted, updated, and deleted, just like rows of other "normal" tables, whether or not such quotas have been "terminated".

TermLinx also terminates quotas implicitly, by marking them "terminated" when

- ▪ a limited-use quota reaches its maximum use count;
- ▪ an allocation quota reaches or exceeds its maximum draw;
- ▪ a quota has passed its expiration time.

A quota terminated by TermLinx is also timestamped (by TermLinx) with the date of termination.

- ▪ Head Office may alter both the "terminated" flag and the termination date, subject to the constraint that "terminated" may not be cleared if the quota would be deemed terminated according to the implicit termination rules above.

- The quota table also contains an "uploaded" column, similar to that of the transaction table, which Head Office maintains in a similar manner. Head Office may thus properly dispose of any allocation residue of a terminated quota.
- TermLinx periodically purges the quota table in a manner similar to the purge of the transaction table: a quota is purged if it is both "uploaded" and "terminated", and the termination date is sufficiently long ago.

6.3.6 Multi-Batch Transactions

Two aspects of the handling of a multiple-batch transaction (for example, the loading of a truck and its pup) are specified:

- Formal documentation and transaction record.
- Quota termination.

Because, after loading, a pup and its truck may be separated for delivery to different destinations, the BOL must contain sufficient detail and occur in sufficient copies for complete documentation to accompany each vehicle. For simplicity, each batch will have its own transaction record and associated documents. Any linking required at Head Office of the transactions for the different batches of a load can be accomplished in many ways, such as by the commonality of driver number and gate entry time.

It is possible that the loading of the truck may exceed an allocation quota for the account, before the pup is loaded. Therefore, the driver's transaction initiation sequence of TermLinx recognizes this condition and allows the loading of the pup (for quotas which allow allocation overrun on the last usage).

6.4   TermLinx Island PLC Interface

6.4.1 Enable Transaction

TermLinx sets status S_ENAB, then signal G_ENAB to request enabling. The PLC decides whether enable is OK:

- If not, clears G_ENAB.
- If so, sets G_ACPT.

If enable was accepted, TermLinx then:

- Clears G_ENAB and G_ACPT.
- Sets S_ACTV.

6.4.2 TermLinx clears S_ENAB.

After enabling, the first time P_FLOW is detected, TermLinx latches S_DCMT.

During the transaction, the PLC reports its status in P_PRSZ, P_FLOW, P_WETP, P_VPRC, and P_BUSY. TermLinx allows the transaction to be ENDed when P_BUSY is clear.

6.5   TermLinx Runtime Registry Entries

Note: Although TermLinx has the ability to create Crystal Reports, the TermLinx software does not include a copy of Crystal Reports. Crystal Reports must be purchased separately.

All runtime registry entries are stored under the key:

HKEY_LOCAL_MACHINE\SOFTWARE\ProSoft\TermLinx\Runtime

Values under this key are:

Key name	Key type	Description	Example
ActiveConfigFile	REG_SZ	The full path to the live Operational Database file for the running TermLinx instance. This file, which has an extension of .OPK, is created by the TermLinx Configuration Manager application, and normally resides in the instance's current directory ("DirInstance" below). This path should *not* be that of a project .OPK file ("DirProject" below).	ActiveConfigFile= "C:\TermLinx\Instance\ TermLinx.opk"
ActiveSite	REG_SZ	The site identifier for the running TermLinx instance, used for interrogating the Accounting Database. This identifier is the primary key to the SITE and STRF tables, and the first component of the primary key to each of the remaining tables (excluding VRSN).	ActiveSite= "ProSoft"
ConfigPswd	REG_SZ	The password for entry into the TermLinx Configuration Manager application. This password is not case-sensitive.	ConfigPswd= "TermLinx"
DirInstall	REG_SZ	The full path to the main directory of the TermLinx installation. This directory is normally used as an umbrella for the various components of the system.	DirInstall= "C:\TermLinx\"
DirInstance	REG_SZ	The full path to the current directory of the running TermLinx instance.	DirInstance= "C:\TermLinx\Instance\"
DirProgram	REG_SZ	The full path to the program directory of the TermLinx installation. This directory holds the executable components of the system (EXE, DLL, and so on) and any other components that are essentially static and common to all installations.	DirProgram= "C:\TermLinx\Programs\"
DirProject	REG_SZ	The full path to the project directory of the TermLinx installation. This directory holds the Operational Database files (.OPS, .OPK) and any other associated files (for example, .ASI) for each project managed by the TermLinx Operational Configuration program Opct_Cfg. The live Operational Database file ("ActiveConfigFile" above) is a copy of a project .OPK file.	DirProject= "C:\TermLinx\Projects\"
DirCoPro	REG_SZ	The full path to the CoProcessor directory of the TermLinx installation. This directory holds the standard files downloaded to the RAMdisk of the 1771-DMC CoProcessor, including the AccuLoad driver BctlAccu and the OS-9 auto-boot command file STARTUP.	DirCoPro= "C:\TermLinx\CoPro\"

Key name	Key type	Description	Example
DirInfo	REG_SZ	The full path to the Documentation directory of the TermLinx installation. This directory holds miscellaneous documentation files.	DirInfo= "C:\TermLinx\Doc\"
DocDefinitionBol	REG_SZ	The full path to the document definition file for the Bill of Lading (Lift Ticket). This file, which typically has an extension of .RPT, is created by the commercial product Crystal Reports, and normally resides in the instance's current directory ("DirInstance" above). This path should *not* be that of a Crystal Reports working file that may be subject to editing.	DocDefinitionBol= "C:\TermLinx\Instance\ BOL.rpt"
DocDefinitionBou	REG_SZ	The full path to the document definition file for the Bill of Unlading (Dump Ticket). This file, which typically has an extension of .RPT, is created by the commercial product Crystal Reports, and normally resides in the instance's current directory ("DirInstance" above). This path should *not* be that of a Crystal Reports working file that may be subject to editing.	DocDefinitionBou= "C:\TermLinx\Instance\ BOU.rpt"
EmergencyDvnr <and> EmergencyPinr	REG_DWORD	If during a login attempt the entered Driver Number and PIN match these two values, then the login is granted and given SuperTrucker authority without validating the entries against the DRVR table of the database. This "Emergency GUI Login" feature allows recovery from situations in which a database-defined SuperTrucker is missing or inaccessible (such as a database crash) that would otherwise make some maintenance procedures difficult or impossible (such as shutting down TermLinx). Since TermLinx requires both Driver Number and PIN to be non-zero before proceeding with a login, this emergency capability may be disabled by setting either (or both) of these two values to zero. These two values, in particular, may be changed at any time, and the change is effective at the next login attempt. This feature should NOT be regularly used to authorize product- transfer transactions; for those, use database-defined DRVR entries instead. Note: Installation of TermLinx installs both these values as "1"; be sure to disable Emergency Login (or change the "1"s to numbers that are hard to guess) after the database has been populated.	EmergencyDvnr=0 EmergencyPinr=0
LogoScreen	REG_DWORD	If non-zero, all TermLinx screens time out to the Startup screen, which typically displays the customer's company logo. If zero, then all screens time out to the Overview screen if present, otherwise to the Login screen, and the Startup screen is never displayed.	LogoScreen=1

Key name	Key type	Description	Example
LogoImage	REG_SZ	The full path to the graphic image file containing the customer's logo, if any, which file normally resides in the instance's current directory ("DirInstance" above). If the file exists, the image is shown on the TermLinx Startup screen and may also be displayed on the TermLinx Login screen. Valid graphic image file formats are .BMP, .DIB, .GIF, .JPG (.JPEG), .WMF, .EMF, .ICO, and .CUR. The image is scaled and stretched to fit within a region of 480 pixels horizontal by 320 pixels vertical (600x400 for the SVGA model) placed against a black background, hence to avoid excessive distortion the image should be as close to this size (larger scales down better than smaller scales up) and aspect ratio (3:2) as possible, and to merge smoothly with its surround the edges of the image should be black or transparent. Since the .JPG (.JPEG) format yields the best results under such scaling and stretching, this format is recommended.	LogoImage= "C:\TermLinx\Instance\ TermLinx.jpg"
OdbcDsnActg	REG_SZ	The ODBC data source name (DSN) of the Accounting Database for the running TermLinx instance. This name implies not only the location of the Database but also the ODBC driver needed to access it.	OdbcDsnActg= "TERMLINX"
OdbcDsnTrns	REG_SZ	The ODBC data source name (DSN) of the Transaction Database for the running TermLinx instance. This name implies not only the location of the Database but also the ODBC driver needed to access it. Note: In this version of TermLinx, this value is not used; the Transaction database is embedded within the Accounting Database.	OdbcDsnTrns= "TERMLINX"
OdbcSchema	REG_SZ	The TermLinx database schema owner, required for qualifying references to tables and other database objects when logging into the database as other than the schema owner, as is typical. This value permits TermLinx to remain compatible with its predecessor, OPACTS, where the schema owner was always "OPACTS".	OdbcSchema= "TERMLINX"
OdbcAppPswd	REG_SZ	The password used by external applications such as the TermLinx Database Manager, the TermLinx Database Wizard, or a host system for logging into the Accounting Database.	OdbcAppPswd= "termlinx_mgr"
OdbcAppUser	REG_SZ	The user id used by external applications such as the TermLinx Database Manager, the TermLinx Database Wizard, or a host system for logging into the Accounting Database.	OdbcAppUser= "TERMLINX_MGR"
OdbcKrnPswd	REG_SZ	The password used by the privileged TermLinx software for logging into the Accounting Database.	OdbcKrnPswd= "termlinx_krn"

Key name	Key type	Description	Example
OdbcKrnUser	REG_SZ	The user id used by the privileged TermLinx software for logging into the Accounting Database.	OdbcKrnUser= "TERMLINX_KRN"
OdbcConnect Max Retry	REG_DWORD	In some boot environments, it may take some time for the database service to become fully operational and ready to respond to connection requests. During boot, the TermLinx kernel repeatedly attempts to connect to the database at a frequency of about one attempt every two seconds until the connection succeeds or this count is exhausted. If missing or erroneous, a value of 120 is assumed. Note: If the TermLinx GUI starts before the database service is ready it may become unresponsive (appear to freeze). The GUI will resume responding when the database connection has been established (or deemed to fail).	OdbcConnectMaxRetry= 120
OdbcOrcl Connect	REG_SZ	The Oracle SQL*Net connect string for the DSN given by "OdbcDsnActg". Note: This value is not used; it serves a documentation function only.	OdbcOrclConnect= "TERMLINX"
PrinterPortBol	REG_SZ	The device name of the parallel or serial port connected to the printer of the Bill of Lading (Lift Ticket).	PrinterPortBol= "LPT1:"
PrinterPortBou	REG_SZ	The device name of the parallel or serial port connected to the printer of the Bill of Unlading (Dump Ticket).	PrinterPortBou= "LPT2:"
PrinterPortLog	REG_SZ	The device name of the parallel or serial port connected to the printer of the Transaction Log.	PrinterPortLog= "COM1:"
RSLinxDriver	REG_SZ	The RSLinx driver used for communicating with the PLC.	RSLinxDriver= "AB_KT-1"
RSLinxMissing	REG_DWORD	If non-zero, RSLinx is deemed not present, hence no connection is made to the PLC. Note: Use only for debugging !	RSLinxMissing=0
RSLinxPortId	REG_SZ	The RSLinx port id provided to the driver when communicating with the PLC. Valid values are "AB:LOCAL", "AB:NAME", and "AB:CIP".	RSLinxPortId= "AB:LOCAL"
RSLinxProcType	REG_SZ	The processor type code for the other end of the RSLinx connection. Valid choices are: "PLC5" and "SLC500" (use "PLC5" for connection to a CL5550).	RSLinxProcType= "PLC5"
RSLinxStation Path	REG_SZ	The path to the port on the PLC at the other end of the connection. For a DH+ connection, enter the decimal DH+ address of the PLC.	RSLinxStationPath= "0.43.1.0"
RSLinxStationId	REG_DWORD	The DH+ address of the port on the PLC at the other end of the connection. This value is obsolete, having been superseded by "RSLinxStationPath", and is used only if "RSLinxStationPath" is missing or empty.	RSLinxStationId=3

Key name	Key type	Description	Example
RSLinxTmotKrn	REG_DWORD	The timeout in milliseconds used for critical ("kernel") RSLinx polls from TermLinx to the PLC. This number should be large enough so that a timeout occurs only when the connection is genuinely lost.	RSLinxTmotKrn=5000
RSLinxTmotApp	REG_DWORD	The timeout in milliseconds used for non-critical ("application") RSLinx polls from TermLinx to the PLC. This number should be large enough so that most polls succeed but small enough so that a genuinely lost connection does not overly degrade system response.	RSLinxTmotApp=1000
RunBCApp<nn>	REG_SZ	The full path to the executable (program file or command file) that is to run instance "<nn>" of an external Batch Controller driver. "<nn>" is replaced by "01" to specify the executable of the first Batch Controller instance, is incremented by 1 to "02" to specify the second instance, and so on until the value for "<nn>" is not found. "<nn>" has no significance to TermLinx except to distinguish multiple instances, to associate with each instance its arguments using "RunBCArg<nn>", and to specify the order of startup.	RunBCApp01= "C:\TermLinx\Programs\ BctlAccu.exe"
RunBCArg<nn>	REG_SZ	The arguments to the Batch Controller instance invoked by "RunBCApp<nn>" for corresponding "<nn>", when required.	RunBCArg01= "1 9600 e7"
XqNoAutoStart	REG_DWORD	A non-zero value prevents TermLinx from restarting automatically upon boot. When TermLinx starts, its first action is to read this value, and only if it is zero (or missing) does TermLinx continue to start; otherwise TermLinx terminates immediately. If the value is 1, however, TermLinx sets this value to 0 before quitting, making startup suppression a one-time-only action. This value is set to 1 by one of the TermLinx shutdown options. For extensive maintenance requiring many non-TermLinx boots, set this value to other than 0 or 1 (for example, 2); when maintenance is complete and TermLinx is to be restarted, set this value back to 0 before rebooting. Note: Installation of TermLinx sets this value as 2, so that the procedures of setting up a new site, which may require many boots, can proceed without interference by TermLinx. Set this value to 0 to enable TermLinx for the first time.	XqNoAutoStart=1

6.6   Upgrading from a Previous Version

For customers with a DBA, the DBA would handle this task. For customers who make use of TermLinx's Database Manager to manage the data, you will need to handle these steps, but you may wish to consult with Oracle or an Oracle consultant during this process.

Important: The schema name in this version is TermLinx.

Start by backing up the existing database, and exporting it. Then import into Oracle 10g XE. Oracle provides documentation and tools for this. Export the tables in this order:

1 SITE
2 NADR
3 STRF
4 PRDC
5 CARR
6 DRVR
7 DCXR
8 VHCL
9 PVST
10 LOCN
11 QOTL
12 QOTD
13 QLCX
14 QDCX
15 CHXR
16 CCXR
17 SPXR
18 TRNS
19 TXCP

You will find Oracle tools and documentation for version 10g XE in: Start / Programs / Oracle Database 10g Express Edition.

If you are an Entero user, you might consider not moving old data into your new database, and just set up the new one with new data, and downloading new accounting data from Entero. Make sure you archive what you need out of the old database before retiring it completely.

If you are moving to a new/different computer, along with moving your database, also bring over your configuration files, including OPK/OPS files and registry entries.

6.7 Using the TermLinx Database Wizard

Use the TermLinx Database Wizard (DBW) to:

- Create a complete TermLinx (ORACLE) database for a single or multiple sites in an online or offline mode
- Modify, update, delete or add records to an existing site database
- Create backup copies of all data records in the TermLinx database
- Generate database and transaction reports
- Create automatic scheduled (hourly, daily and so on) backups for all or selected tables
- Generate automatic scheduled (hourly, daily, and so on) hard copy reports

If you do not have another, preferred tool, the TermLinx Database Wizard is convenient in many database scenarios.

Avoid using the Wizard, and instead use the TermLinx Database Manager or another tool, in either of these cases:

- Your Corporate environment requires more specialized control of database contents than the Wizard can provide.
- You are tailoring the Test Database that you installed by running the script included with the installation of TermLinx.

6.7.1 Running the Database Wizard

Important: Although the TermLinx Database Wizard fully supports the standard Windows point-and-click interface, it may be simpler in some cases to use the equivalent keyboard commands, so the following procedure describes how to access the database wizard using only a keyboard.

Using the external keyboard:

1   Press and hold the Windows key to open the Start Menu.
2   Touch the screen or use the arrow keys to navigate to Programs > ProSoft Technology > TermLinx > TermLinx Database Wizard.
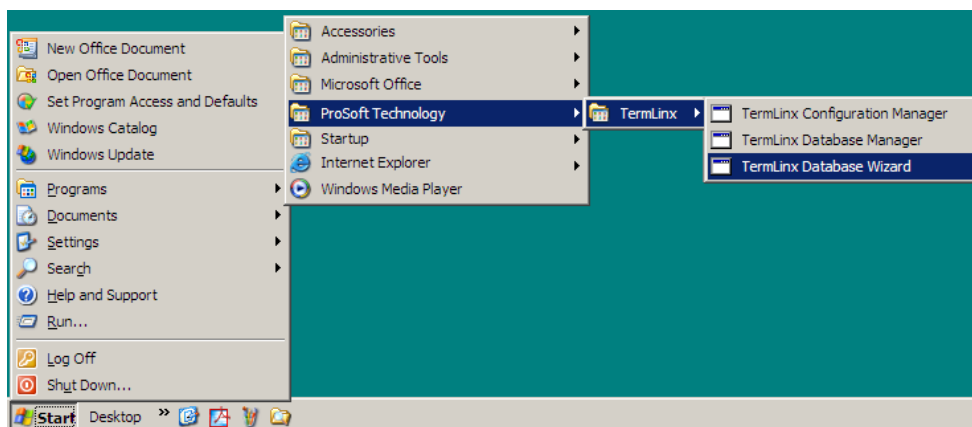
3 The TermLinx Database Wizard displays. Press **[Enter]** to dismiss this window and open the ODBC Logon dialog box.
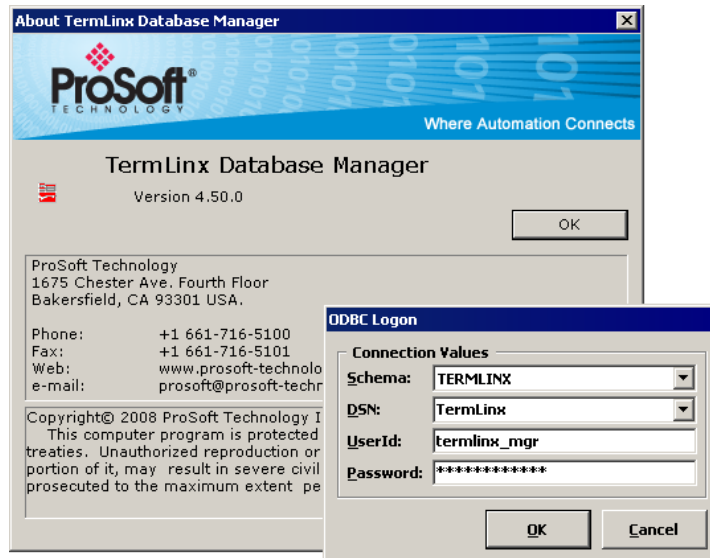
4 In the ODBC Logon dialog box, enter:
- o Schema = "TERMLINX"
- o DSN = "TermLinx"
- o UserId = "termlinx_mgr"
- o Password = "termlinx_mgr"

6.7.2 General Table Maintenance Procedures - All Tables

This section summarizes the common functions available in all tables. From the table screen, select the table to edit. This action opens the table maintenance dialog box.

- Click Find or Refresh to populate the list with all database records for your site in the selected table.
- To add a new entry, select the "New record" list entry. Enter the values for all fields, and then click Add. Click Refresh to repopulate the list with your new record.

Important: The primary key MUST be different from all others in the table.

- To edit an existing record, select the record to edit. Make your changes, and then click Update.

Important; You MUST NOT change the value of any PRIMARY KEY. Primary keys are always displayed in a GREEN box.

- ▪ To delete (permanently remove) a record, select the record in the display list to delete, and then click Delete command. Records deleted this way cannot be recovered.
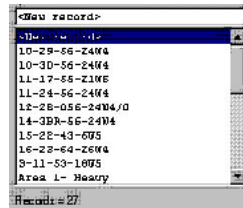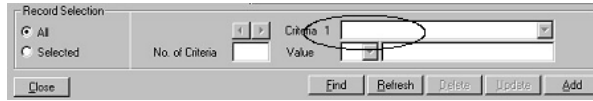
6.7.3 Color Fields

Every table displays color coded data boxes. The four colors have the following significance:

Color	Attribute	Description
Green	Mandatory	Signifies the PRIMARY KEY you must enter this using the Keyboard. This field is mandatory.
Blue	Mandatory	Double click this field to open another table to select the required record. You MUST then use the <Close> button to close this table and transfer the selection to the current BLUE field. Make sure that what you selected from that table now appears in the location you double clicked. If the second table does not contain the field you were looking for (example: a carrier) enter that field (using the <Add> button) that table before using the <Close> button to return to the original table. This is a mandatory field
Yellow	Optional	Double click this field to open another table to select the required record. You MUST then use the <Close> button to close this table and transfer the selection to the current YELLOW field. This is an optional field
White	Optional	White fields are generally optional. However you may populate them if your database has been designed to take advantage of certain configuration options

6.7.4 Maintaining the Database

Introduction

The TermLinx database is consists of three parts:

- Accounting
- Transaction
- Temporary

Note: Although each of these three parts are referred to as a database, they are just part of one TermLinx database.

Accounting Database

The Accounting Database consists of 17 tables in the TermLinx database. These tables express the relationships among all parties to all transactions that occur at the site. The key concept is that of a "quota", or "account", which expresses the details of a single contract for delivery. Additional tables define certain configurable options for the site, the "truckers" who can execute transactions at the site, the carrier-owned vehicles that are authorized to take product from the site, and so on. This database is used to guide the trucker through the creation of his transactions and to validate his entries. It also retains some statistical information concerning the individual contracts. Under stand-alone operation, the TermLinx Database Manager (DBM) is a convenient tool for maintaining this database. As a node in a corporate network, the DBM is typically not used except in an emergency; instead, the corporate administrative system is responsible for maintaining synchronization of the on-site (local) database with the corporate database at head office. In the latter case, the TermLinx schema has features reserved for use by the corporate host in accomplishing this task.

Logical Name	Actual Table Name
Site	SITE
Name and Address	NADR
Site Reference	STRF
Product	PRDC
Carrier	CARR
Driver	DRVR
Driver – Carrier Cross Reference	DCXR
Vehicle	VHCL
Province / State	PVST
Location	LOCN
Lift Quota	QOTL
Dump Quota	QOTD
Lift Quota – Carrier Cross Reference	QLCX
Dump Quota – Carrier Cross Reference	QDCX
Carrier – Hirer Cross Reference	CHXR
Customer – Consignee Cross Reference	CCXR
Supplier – Producer Cross Reference	SPXR

Transaction Database

The Transaction Database retains the historical record for all transactions at the site. It consists of two tables. The Current Transaction table records details of all transactions that have been created but not yet fully discharged, that is, transactions that are on "standby" (waiting for discharge) or in progress.

The Terminated Transaction table records all product flow, including any records of unauthorized flow as well as fully discharged accountable transactions. Entries in the Terminated Transaction table are self-contained; each entry contains all relevant information extracted from the Accounting Database, so that subsequent changes to the Accounting Database do not impact the historical record. Transactions are retained in the Terminated Transaction table for a configurable period (up to 90 days) and are automatically purged thereafter; this allows plenty of time for retrieval to more permanent archival storage and permits Bills of Lading or equivalent documents to be reprinted even weeks after the fact. Under stand-alone operation, the DBM can produce detail or summary transaction reports. As a node in a corporate network, the corporate administrative system is responsible for retrieving and archiving the transaction records. In the latter case, the TermLinx schema has a feature to ensure that transactions are not purged until retrieved, even if they are older than the retention period.

Logical Name	Actual Table Name
Current Transaction	CTRN
Terminated Transaction	TRNS
Transaction Exception	TXCP

Power Failure and Connection Failure

The Transaction Database will hold the current status of the transactions, even in the event of a power failure. It will automatically resume when the power is restarted. You may optionally terminate these transactions with PLC logic.

In the event of a lost or disconnected network connection, TermLinx will automatically continue to operation with the database it has. When the network connection is regained, the corporate office needs to re-synchronize the data.

If any transactions were performed manually while the TermLinx system was down, when TermLinx starts back up again it will report a product leak, because it will detect the change of value of the batch controller's non-resettable accumulator. The corporate office could analyze the database differences and could manually enter the transactions into the TermLinx database afterwards.

Temporary Database

The Temporary Database is used strictly as a work area for production of formal documents such as Bills of Lading. This is a collection of 10 tables, for internal use only by TermLinx.

External Access and Integration

TermLinx provides three fields in each Accounting Database table for your customized use. TermLinx does not display any of these fields.

Field Name	Data Type	Example of Use
XSYS	Number (8)	Synchronization support field, for example an incrementing sequence number to indicate the last count the record was updated at corporate office. If the corporate office number differs from what is on site, we know that what is on site is old.
RREF	Varchar (2)	A value to indicate whatever you want, but you may find it useful to put in a text value to make a corresponding numeric value in the table more meaningful to the human reader.
CHGC	Number (8)	This field is used by TermLinx, and can be used by you too. TermLinx updates this number as a Change Counter. You could use this to make sure your corporate database is in-synch with the site's database.

If the site desires integration with external systems, such as Tank Gauging or Inventory Management Systems, that is possible at either the site level or the corporate level. We offer these three fields in the tables for your use to do that. Your database administrator can setup routines in the database to make use of these fields. At the site level, the SI can make use of the TermLinx data and setup the PLC logic for direct interaction of it with such external systems.

If further customization of the TermLinx database is required to support other corporate or site systems, the database administrator may add additional fields to the existing TermLinx tables without causing harm to the operation of TermLinx. TermLinx does not supply tools to do this.

Warning: ProSoft Technology's technical support will not be able to support any custom additions you make to the TermLinx database, nor can ProSoft ensure product upgrade and/or backwards compatibility.

Adding New Carriers
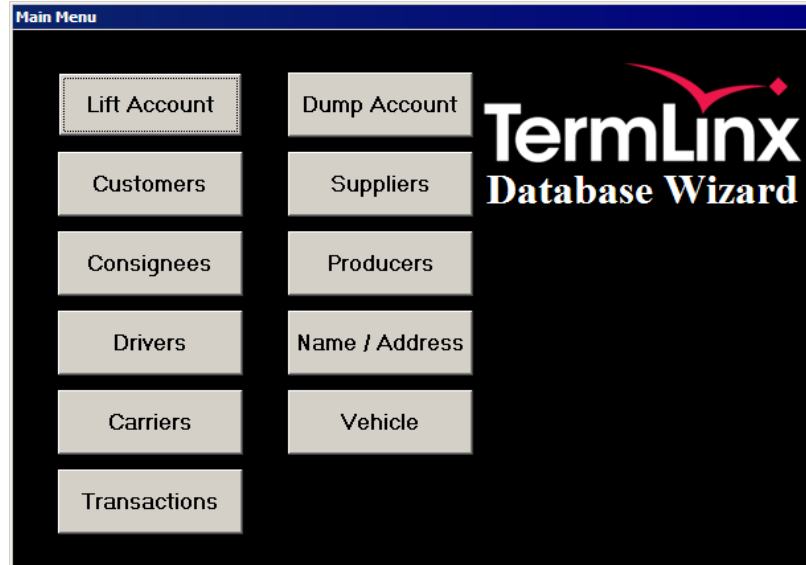
1 From the Main Menu, click Carriers.
2 When the Carrier Table dialog box opens, click Find to populate the list with all the records this table currently holds. The number at the bottom of the list is the total number of records.
3 In the list box, select New record. To add a new record to the Carrier table, complete these fields:

- o **Name** (Primary Key - Required)
- o Other fields are optional. You may use them for your own records.
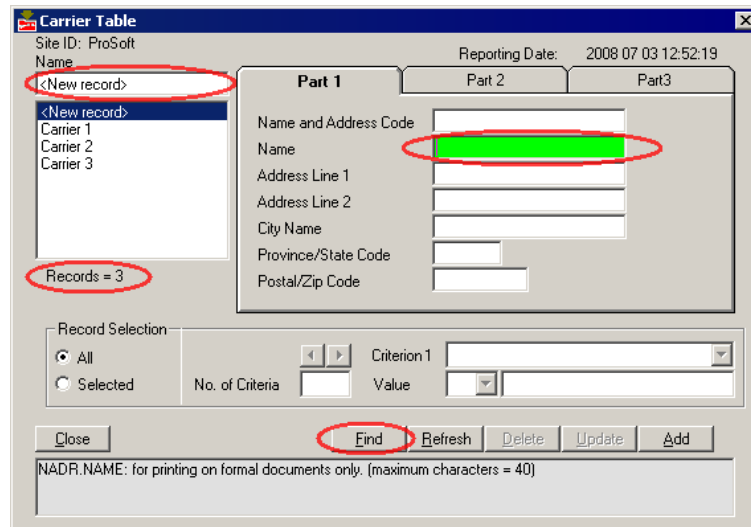
4 Click the Add button. The Note box at the bottom of the screen indicates that the record was added to the Carrier table.

Repeat steps 3 and 4 until you have entered all the new records. Then click the
Close button to close the Carrier table.

The new carriers will now appear in the TermLinx Driver Interface.

Adding a New Dump Account

1   From the Main Menu, click Dump Account.
2   When the Dump Account dialog box opens, click Find to populate the list with
all the records this table currently holds. The number at the bottom of the list
is the total number of records.
3   In the list box, select New record. To add a new record to the Dump Account
table, complete these fields:

- o   **Quota Confirmation Code** (Primary Key - required). This is usually the
LSD for the source of the product being trucked to this site.
- o   **Product Code** (required). Double click on this box to open the Products
table, and select one of the Products from the list box on the left, and then
click Close to return to the Dump Quota table dialog box.
- o   **Supplier** (required). Double click on this box to open the Supplier table.
Select one of the Suppliers from the list box on the left and then click
Close to return to the Dump Quota table dialog box.
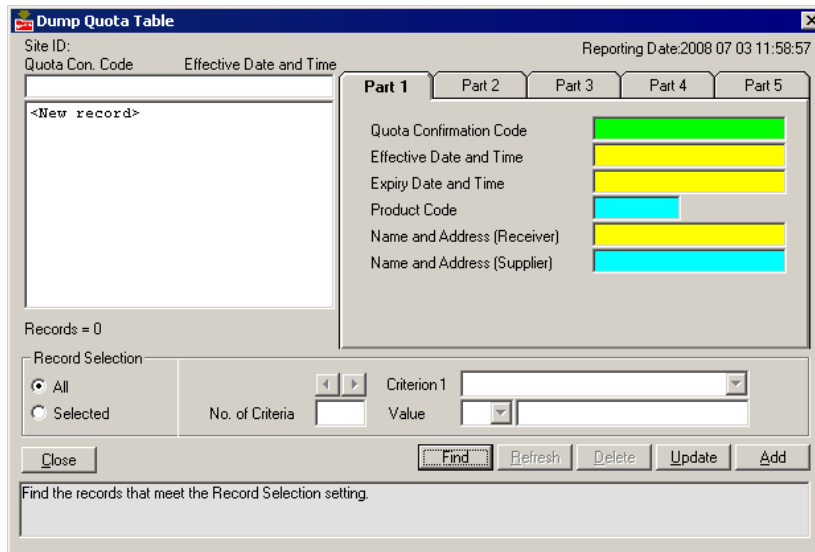
o **Role of Carrier Hirer**. Click the Part 2 tab on the Dump Quota table. To allow all carriers to haul product from all LSD locations, enter "NULL" as shown in the following illustration. If you leave this field blank, drivers will not be able to select this LSD location.

o **Role Water Cut Calibration Information.** Click the Part 4 tab on the Dump Quota table. Proper water-cut measurement for this LSD location at the time of offloading requires three Transaction Control Values that TermLinx will download to the PLC and the water-cut probe interface. In the Transaction Control Value1 field, enter the clean oil density (kg/m3) of this account. In the Transaction Value 2 field, enter the IAT factor (obtained from the Water-Cut Display Page) after you finish water cut calibration for this LSD. In the Transaction Value 3 field, enter the density of water (or brine) for this LSD. The default value for this field is 1000 kg/m3.

4 Click the Add button. The Note box at the bottom of the screen indicates that the record was added to the Carrier table.

Repeat steps 3 and 4 until you have entered all the new records. Then click the Close button to close the Dump Account table.

Calibrating Your System With Water % Sample Data

Obtain a crude oil sample from the truck while it is offloading. Stop offloading while you spin the sample and infer the water content of the sample (% water). When you are ready, restart the load and follow the instructions in the steps below. For best results, take three samples and use the average value.
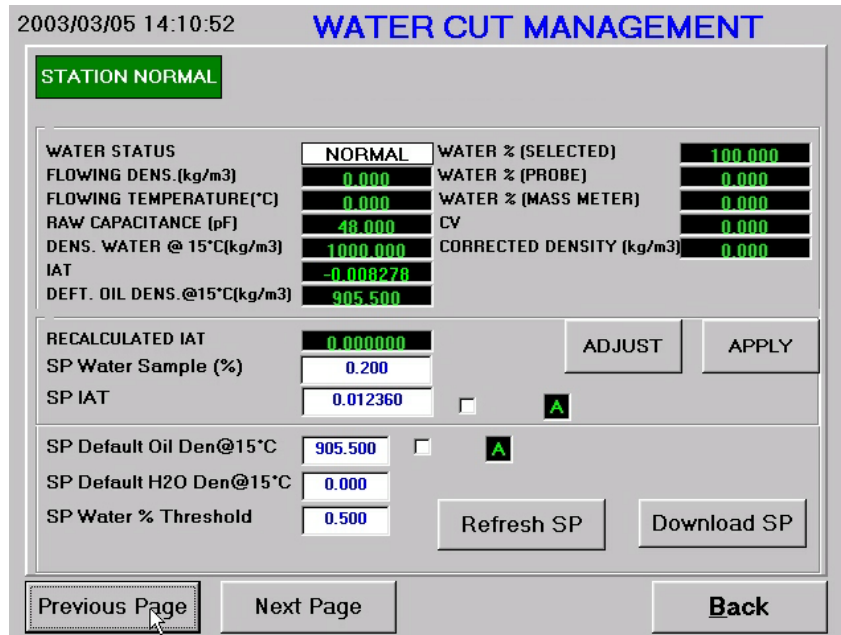
1 Login with SuperTrucker Login ID.
2 Click <Overview> | <Previous> to select the display shown above.
3 Click the check box so that <A> changes to <M> (auto to manual).

Important: Click <Download SP> to execute the change in step 3.

4 Enter the Water Sample value in the [SP Water Sample (%)] field.

Important: Click <Download SP> to execute the change in step 4.

5 Click <Refresh SP> to ensure that the value entered in 5 was accepted.
6 Then, while the offloading is in progress, click <ADJUST>. The system will take a few seconds to adjust the water cut to the sample value and display the [RECALCULATED IAT].
7 If you are satisfied with the results, click <APPLY> to force the system to accept this value.
8 Note the new value of IAT and enter it in the DATABASE.

Adding New Drivers

1 From the Main Menu, click Drivers.

2 When the Driver Table dialog box opens, click Find to populate the list with all the records this table currently holds. The number at the bottom of the list is the total number of records.

3 In the list box, select New record. To add a new record to the Drivers table, complete these fields:

- o **Driver Number** (Primary Key - Required). This number uniquely identifies the Driver in the TermLinx database. The driver will log in using this Driver ID number.
- o **Driver PIN** (optional). This is the driver's Personal Identification Number (PIN or password). The PIN provides an additional level of security to identify and admit a specific Driver.
- o Other fields are optional. You may use them for your own records.
- o **Carrier Name** (Required). Double click on this box to open the Carrier table and select one of the Carriers from the list box on the left, and then click Close to return to the Driver Table dialog box.

The driver may now log in and dump loads from any LSD in your database from which the driver's carrier is authorized to haul.

6.7.5 Printing TermLinx Reports

The Database Wizard creates three types of reports from the entire TermLinx database:

- On demand pre-formatted reports, which you can request at any time
- Selected pre-formatted table reports (one for each table in the TermLinx Accounting Database)
- Daily reports, which can be scheduled for daily output at a specified time

Reports are sent to your default Windows printer.

On Demand Reports

The following reports are pre-defined, and can be generated from the TermLinx Database Wizard:

- Bill of Lading
- Carrier Insurance Expiration Report
- Driver License Expiration Report
- Product Allocation Report
- Customer List Report
- Suppliers List Report
- Products Report
- Transactions Report

The procedure for printing most reports is similar. The following steps demonstrate how to print a Transactions report.

Example: printing a Transactions report:

1 Start the TermLinx Database Wizard and log in to the database.
2 Open the Reports menu, and choose H Transactions. This action opens the Transaction Reports dialog box.
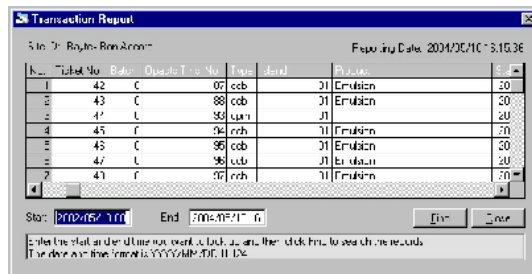
Note that when the Transaction Report dialog box opens, all the columns will be blank. Enter the **starting date and hour** in the Start field, located at the bottom left of the table. The transaction report will not include any transactions prior to this "Start" date and time.

Important: You must enter the date and time exactly as shown in the help window at the bottom of the table. For example, to print the report for May 10th 2004 starting at 8.00AM enter: <2006/05/10 8>. Note that there is a single space between the date field and the hour field (which must be in 24 hour format).

1   Enter the **ending date and hour** in the End field. For example, to retrieve all the transactions until May 10th 2006 at 8.00PM in the report, enter <2004/05/10 20>.
2   After you have entered the Start and the End times for your report, click Find to populate the list of completed transactions covered by the selected time interval.

Tip: Each transaction has several fields associated with it. To choose which fields to print, open the File menu and select Print / Print Field Selection, and then click None. Note that all the field descriptors will change from black to white. White descriptor headers signify disabled fields. Then, in the Transaction Report dialog box, click the header at the top of each column to include that column in your report. Use the horizontal scroll bar to view all the available fields.
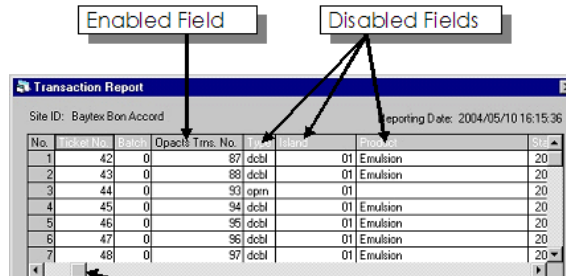
Note: If the selected columns of data are too wide to fit on a standard letter-sized sheet, TermLinx Database Wizard will print extension sheets to accommodate all the selected columns.

3   To print the report, open the File menu and choose **Print / Print**.

Daily Reports

You can use TermLinx Database Wizard to schedule a selection of daily reports to generate at specific times. To generate daily reports:

1   Open the Reports menu and choose Daily Reports. This action opens the Daily Reports dialog box.
2   Select a report to generate from the drop-down list.
3   Select the time of day to generate the report.
4   Repeat steps 1 to 3 for each additional report. The report type and scheduled time are shown in the table on the right side of the dialog box.
5   Click Start to schedule the selected reports. When the Daily Report task is active, the indicator above the Start button flashes green.

Saving a Report Template

You can save a customized report template to open and use again later.

To save a Report Template:

1   Open the Reports menu and choose the type of report to create
2   Select the items to include in the report.
3   Open the File menu and choose Save. This action opens a standard File Save dialog box.
4   Reports are saved in .CSV format so that you can open them later in TermLinx or another program that supports this file format, for example Microsoft Excel. Enter the name for your report, and then click Save.

To open a saved report template:

1   Open the File menu and choose Open. This action opens a standard File Open dialog box.
2   Choose the file to open, and then click Open.
3   TermLinx opens the saved report template.

6.7.6 Export / Import Database

You can export data from the database in CSV (Comma Separated Values) for backup or archival purposes. You can also import these CSV files back into the TermLinx database in the event of data loss. TermLinx Database Wizard exports CSV files into C:\TermLinx\BACKUP.

To import or export data, open the Administration menu and choose Export/Import Table Data. This action opens the Export/Import Table Data dialog box.

Manual Export

You can export data at any time, for example to analyze selected ranges of data in another application.

1   In the Export/Import Table Data dialog box, select Manual Export.
2   Select the table to export from the drop-down list.

3 Select the range of data to export from the table:

- o Selected data: only the rows and columns selected in the list window.
- o All data: All the data in the selected table.

4 Click Export to export the data. The exported data files will be stored as C:\TermLinx\BACKUP\expxxxx.csv, where xxxx is the abstract name for the table. For example: for the Name and Address table, the file name is expnadr.csv.

> **Important**: If transactions and values generated and stored by TermLinx will be subject to auditing, you must take steps to ensure that these exported data files cannot be modified or corrupted by any external application. Modifying these files in any way will interfere with the correctness and integrity of your data.

Auto Export

You can schedule automatic exports to occur at regular intervals, for example to archive all data in a selected table. You can use this procedure as part of a general database archiving period, to move aged data to offline storage.

1 In the Export/Import Table Data dialog box, select Auto Export.
2 Select the table to export from the drop-down list.
3 Select Hours, and then enter a time interval for data export. For example, to export data once per day, enter "24".
4 Select the Starting Hour from the drop-down list. This is the time, in 24-hour format, when the data export will begin. For example, to export data at 6 p.m., select "18" (for 18:00 hours in 24-hour format).
5 Notice that the window on the right side of the dialog box now contains the Table Number, interval and Start Hour (start time) for the export.
6 Repeat steps 2 through 4 to select additional tables, intervals and start times to schedule.
7 When you have finished making your selections, click Start. When the Auto Export task is active, the indicator above the Start button flashes green. The exported data files will be stored as C:\TermLinx\BACKUP\ expxxxxh.csv, where xxxx is the abstract name for the table and h is the hour in 24-hour format when the export began. For example: for the Terminated Transaction table exported at 1 p.m (13:00 hours in 24-hour format), the file name is exptrns13.csv.

> **Important**: If transactions and values generated and stored by TermLinx will be subject to auditing, you must take steps to ensure that these exported data files cannot be modified or corrupted by any external application. Modifying these files in any way will interfere with the correctness and integrity of your data.

Import

You can import previously exported data, to restore data that may have been lost due to system failure, or to import data from another application. Import files must be and named in the proper format.

When you select a table to import, the TermLinx Database Wizard will use the corresponding expxxxx.csv file in C:\TermLinx\BACKUP.

1 In the Export/Import Table Data dialog box, choose Import.

2 Choose the table to import from the drop-down list. TermLinx Database Wizard identifies the correct CSV file according to the abstract name, which forms the first part of the archive filename.

3 Choose the range of data to import:

- o Selected data: only the selected table from the drop-down list.
- o All data: All the tables in the database.

4 To transfer records column by column, select (check) the Columns check box. Although this option takes more time, it is safer to use when the structure of the new table does not match the structure of the table you are importing.

5 To replace all records in the target data with the corresponding data in the CSV file, select (check) the Update check box.

Warning: Existing data in your TermLinx database will be overwritten by the data you import. To avoid data loss, perform a full backup of your TermLinx database BEFORE you import new data.

6 To discard all data in the existing table and import the data in the CSV file as new records, select (check) the Clear Table check box.

Warning: Existing data in your TermLinx database will be overwritten by the data you import. To avoid data loss, perform a full backup of your TermLinx database BEFORE you import new data.

7 When you have finished making your selections, and you are sure you have a good backup of your existing data, click Open to begin importing your data.

- o If you are importing All data, TermLinx Database Wizard automatically open and import each table.
- o If you are importing Selected data, the imported table will appear in the window on the right side of the dialog box. Click Import to begin importing the data.

7   ProSoft TermLinx Agreement

In This Chapter

7.1   SCHEDULE A: GENERAL TERMS AND CONDITIONS

7.1.1 DEFINTIONS

1   "Confidential Information" shall mean any information of the Disclosing Party and includes, without limitation, any business, marketing, technical and scientific information, trade secrets, processes, designs, data, formula, plans, prototypes, specification, know-how, improvements, inventions (whether patentable or not), techniques, software, source code, customer lists, research, business opportunities, agreements and other information whether or not related to or arising from the activities contemplated in this Agreement and which may be in any form or medium and whether or not designated as confidential (or like designation). Notwithstanding the forgoing, Confidential Information shall not include any information that (a) is in the public domain without such disclosure being as a result, directly or indirectly, of a breach of the obligations of confidence, secrecy or non-use by the Receiving Party or; (b) was previously known to the Receiving Party, reasonable proof of which lies upon the Receiving Party; or (c) was received by the Receiving Party without any obligation of confidentiality from a source (other than the Disclosing Party) lawfully having possession of such information; or (d) is released or disclosed to the public by the Disclosing Party or by its conduct; or (e) is required to be disclosed by operation of law.

2   "Date of Order" shall mean the Date of Order as set out in an Order.

3   "Disclosing Party" shall mean a party who provides Confidential Information to the Receiving Party under this Agreement.

4   "Documentation" shall mean user and technical documents relating to the Equipment or Software delivered to Licensee by Licensor.

5   "Equipment" shall mean the computer and other equipment set out in an Order and other ancillary equipment delivered to Licensee.

6   "Installation Fee" shall mean the Installation Fee as set out in an Order.

7   "Intellectual Property" shall mean any intellectual property, including without limitation, patents, trademarks, copyright and industrial design.

8   "Maintenance Fee" shall mean the Maintenance Fee as set out in an Order.

9   "Order(s)", the form of which shall be substantially as attached in Schedule E.
10 "Receiving Party" shall mean a party receiving Confidential Information from the Disclosing Party under this Agreement.
11 "Release" shall mean a version of the Software delivered to Licensee containing minor functional enhancements, modifications, extensions, error corrections or bug fixes. Releases do not include a major addition to the functionality of the Software.
12 "Services" shall mean any services provided by Licensor to Licensee under this Agreement including maintenance and support and installation services.
13 "Software" shall mean software programs, including Releases, in object code format only, set out in an Order or developed for Licensee pursuant to any Services.
14 "Software License" shall mean the terms and conditions set out in Schedule B.
15 "System" shall mean the Software and Equipment.
16 "System Price" shall mean the System Price for the Equipment and Software as set out in an Order.
17 "Term" shall mean from the Date of Order, continuing in perpetuity.
18 "State" shall mean the United States.
19 "Territory" shall mean Canada.

7.1.2 PRICE, PAYMENT AND ORDERS

1   All amounts payable under this Agreement, including without limitation the System Price, Maintenance Fees and Installation Fees, shall be paid by Licensee to Licensor within thirty (30) days of receipt of an invoice.
2   Licensee shall pay all taxes, duties, charges, assessments and all other required remittances of any kind (excluding taxes based solely on Licensor's income) imposed by any federal, provincial, state or local government which arise and become due as a result of any transaction hereunder or the use of the Equipment or Software or the provision of any Service.
3   Any offer to license software or procure equipment or services from Licensor shall be done pursuant to an Order. All Orders, when executed by the parties, shall be subject to the terms and conditions of this Agreement and shall become part of this Agreement. In no event will the terms or conditions of Licensee's purchase orders or other documents vary or add to the terms and conditions set out in this Agreement.

7.1.3 TITLE

1   Licensor (or its suppliers) retain all right, title and interest in and to the Software including all Intellectual Property embodied therein. All copies of the Software shall remain the property of Licensor or its suppliers.
2   Licensee shall become the owner of the Equipment on delivery and installation.

3 Licensee hereby acknowledges and agrees that the Software constitutes and contains valuable proprietary products and trade secrets of Licensor. Accordingly, Licensee agrees to treat (and take sufficient precautions to ensure that its employees and agents treat) the Software as Confidential Information in accordance with the confidentiality provisions set out in Section 4.

7.1.4 CONFIDENTIAL INFORMATION

1 A Receiving Party shall be bound by an obligation of confidence to the Disclosing Party in respect of any Confidential Information disclosed by the Disclosing Party or on its behalf. In respect of such Confidential Information, the Receiving Party shall not: (a) disclose, either directly or indirectly, any such Confidential Information, or any part thereof, other than to its employees who have a need to know the Confidential Information (b) shall not use any such Confidential Information, or any part thereof for any purpose except as specifically contemplated in this Agreement and (c) shall not make any copies of any Confidential Information except as required to fulfill the obligations and to exercise the rights granted in this Agreement. The Software shall only be copied for the purposes of installing it on one computer and to make one back-up copy.
2 The parties agree that the terms and conditions of this Agreement are confidential and that neither party shall disclose the contents of this Agreement without the prior written consent of the other party or except as required by law. Notwithstanding the forgoing, the general relationship of the parties (and not the specific terms) shall not be treated as confidential and the disclosure of same is permitted.

7.1.5 TERM

1 The term of this Agreement shall be the Term, unless terminated earlier as provided herein.
2 This Agreement and the licenses granted herein may be terminated by the non-defaulting party if any of the following events of default occur: (1) if a party materially fails to perform or comply with this Agreement or any provision hereof; (2) if a party fails to comply with the provisions of Section 2 (Price, Payment and Orders) or Section 4 (Confidential Information); (3) if a party becomes insolvent or admits in writing its inability to pay its debts as they mature or makes an assignment for the benefit of creditors; (4) if a party files a petition for bankruptcy, receivership statute or the like, as they now exist or as they may be amended, is filed by a party; or (5) if such a petition is filed by any third party or an application for a receiver is made by anyone and such petition or application is not resolved in favor of the party within ninety (90) days.
3 Termination shall be effective thirty (30) days after notice of termination is delivered to the defaulting party if the defaults have not been cured within such thirty (30) day period.
4 Upon termination of this Agreement, Licensee shall cease and desist all use of the Software.

5 Notwithstanding the termination of the Agreement, Sections 2, 3, 4, 6 and 7 shall survive such termination and remain in force. All other rights and licenses granted hereunder shall be extinguished upon termination.

6 Irrespective of the reason for termination, all payments made by Licensee to Licensor hereunder are non-refundable.

7.1.6 WARRANTIES AND LIMITATION OF LIABILITY

1 Licensor warrants that the Equipment will be free of manufacture's defect for a period of 120 days from the date of installation and warrants that the Software will have been installed on the Equipment.

2 Licensor does not represent or warrant that all errors in the System or Services can or will be corrected.

3 THE SOFTWARE AND SERVICES ARE BEING PROVIDED STRICTLY ON AN "AS IS" BASIS. EXCEPT AS OTHERWISE EXPLICITLY SET OUT HEREIN LICENSOR EXPRESSLY DISCLAIMS ANY AND ALL WARRANTIES AND CONDITIONS CONCERNING THE EQUIPMENT, SOFTWARE AND SERVICES, INCLUDING ANY AND ALL WARRANTIES AND CONDITIONS OF DESIGN, MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE, PERFORMANCE AND ANY AND ALL WARRANTIES AND CONDITIONS THAT MIGHT OTHERWISE ARISE DURING THE COURSE OF DEALING, USAGE OR TRADE AND THOSE WHICH MAY BE IMPLIED BY LAW. THIS AGREEMENT SETS OUT THE ENTIRE EXTENTS OF ALL WARRANTIES IN RESPECT OF THE EQUIPMENT, SOFTWARE AND SERVICES AND NO AGENT OF LICENSOR IS AUTHORIZED TO ALTER THE WARRANTY OBLIGATIONS OF LICENSOR. ALL ALTERATIONS SHALL BE IN WRITING.

4 Licensee acknowledges that it has or will have independently determined that the Equipment, Software and Services meet its business requirements and that it shall not rely on any representation made by Licensor as to the suitability of the Equipment, Software or Services for nay particular purpose.

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11   Other than instances where Licensor is obligated to indemnify Licensee herein, Licensee shall indemnify and hold harmless Licensor from and against any claims, demands or causes of action whatsoever, and shall defend or shall defend or settle all claims and actions brought against Licensor by a third party arising out of or related to Licensee's use of the Equipment, Software or Documentation, howsoever such claim or action shall have occurred or arose.

12   Licensee hereby agrees that it is responsible for implementing procedures and systems to protect its operations and data as is prudent to prevent and mitigate against the loss or damage to same in the event of errors or a malfunction in the Equipment or Software. Under no circumstances shall Licensor incur any liability due to Licensee's failure to implement the forgoing.

7.1.7 GENERAL

1. Licensee shall have no right to transfer, assign or otherwise dispose of its rights or obligations hereunder without the prior written consent of Licensor. Licensee shall, however, have the right to transfer this Agreement in the event of a sale of all or substantially all of its assets or the business operations in which the System is used.
2. This Agreement shall be governed, construed and enforced in accordance with the laws of the State of California, without reference to conflict of laws principles. Any dispute arising out of this Agreement or in relation to the Equipment, Software or Services shall be adjudicated in the courts in California, U.S.A. Notwithstanding the forgoing, either party may apply to any court of competent jurisdiction for injunctive relief.
3. The Licensor and Licensee hereunder are independent contractors and nothing contained in this Agreement shall be construed to constitute the parties otherwise.
4. If any provision of this Agreement is held to be invalid by a court of competent jurisdiction, then the remaining provisions shall remain in full force and effect.
5. The failure of either party to enforce at any time any of the provisions of this Agreement shall not be deemed to be a waiver of the right of either party to enforce the same or a different provision in the future.
6. The nonperformance by either party of an obligation hereunder shall be excused to the extent that performance is rendered impossible by strike, fire, flood, governmental acts or orders or restrictions, failure of suppliers, or any other reason where failure to perform is beyond the control and not caused by the negligence or neglect of the non-performing party. Financial difficulty is excluded.
7. This Agreement constitutes the entire agreement between the parties and supersede all previous agreements and representations, oral or written, relating to the subject matter of this Agreement. This Agreement may not be modified or amended except in writing signed by a duly authorized representative of each party.

7.2 SCHEDULE B: SOFTWARE LICENSE

7.2.1 LICENSE

1. Subject to the terms and conditions of the Agreement and this Software License, Licensor hereby grants to Licensee a non-exclusive, non-transferable license for the Term, without right of sublicense, to install and use the Software in the State or Territory for Licensee's internal business purposes only.
2. Licensee shall have no rights in the Software other than as specifically set out herein. Licensee shall not create derivative works of the Software or permit any third party to use the Software or shall Licensee operate the Software on behalf of a third party. Licensee shall not reverse engineer, de-compile or otherwise attempt to derive the source code of the Software.

3 Licensor may attend the office of Licensee to audit Licensee's operations to ensure Licensee's use of the Software is in compliance with the terms of this Agreement. All operational audits will be conducted during regular business hours with reasonable notice.

4 Specific customization development performed by ProSoft Technology, Inc. on behalf of a Customer is owned by ProSoft Technology, Inc. and Licensed by the Customer.

7.3 SCHEDULE C: MAINTENANCE AND SUPPORT

7.3.1 DEFINITIONS

1 "Maintenance and Support" shall mean that Licensor will provide:

a) Releases, as and when Licensor makes the same generally available to its other customer. Release includes system changes and bug fixes; and

b) Major upgrades are subject to additional charge; and

c) Basic Support or 24 / 7 Support as set out in an Order.

2 "Onsite Support Fee" shall mean two hundred and seventy-five dollars (US $275.00) per man-hour.

3 "Basic Hours of Support" shall mean Monday through Friday, excluding statutory holidays in Bakersfield, California, 8:00 a.m. to 5:00 p.m., Pacific Time.

4 "Current Version" means the most recent version of a Release, plus the prior Release.

5 "Basic Support" shall mean Telephone or email support with respect to the Current Version, during the Basic Hours of Support. Such telephone support shall include (i) clarification of the functions and features of the Current Version, (ii) clarification of Documentation and (iii) error verification, analysis and correction.

6 "24 / 7 Support" shall mean the Basic Support and access outside of the Basic Hours of Support to support personnel via message pager for urgent/emergency situations.

7.3.2 GENERALLY

1 For so long as Licensee is current in the payment of all fees, including the System Price and the Maintenance Fees, Licensor shall provide the Maintenance and Support to Licensee.

2 Licensee shall supply the Licensor with the following items:

o Current PLC ladder logic responsible for interaction with TermLinx system.

o Contact information for local on-site personnel, or Systems Integration Company responsible for the maintenance and operation of the TermLinx system.

o Current system diagram pertaining to the TermLinx system.

     o   Electronic access to the TermLinx system so that Maintenance and Support can be provided remotely. Failure to provide access may limit support.

3 During the term of the Maintenance and Support, Licensor shall use its reasonable commercial efforts to correct any reproducible programming errors in the Current Version. Upon identification of any programming error, Licensee shall notify Licensor of such error and provide Licensor with a description of the problem and any reasonable assistance as requested by Licensor. Licensor shall use commercially reasonable efforts to correct such errors in the Current Version.

4 Releases may be provided by electronic delivery through an ftp server over the Internet. Licensor will provide Licensee with notice of a new Release by e-mail. Licensee is responsible for installing any Release or alternatively, at Licensee's request, Licensor will install the Release at the Installation Fee.

5 Technical Support contact information is as follows:

By Phone: 661.716-5100 or 800-326-7066

By Email: support@prosoft-technology.com (mailto:support@prosoft-technology.com)

7.3.3 MAINTENANCE FEES

Licensee shall pay to Licensor the Maintenance Fee on the Date of the Order and on every yearly anniversary thereafter. The Licensor may increase the Maintenance Fee by providing sixty (60) days notice of same prior to the Maintenance Fee becoming due in any year.

7.3.4 EXCLUSIONS

1 Licensor shall not be responsible for correcting any errors arising out of (i) the operation of the Software in an environment other than as set out in the Documentation; (ii) any alterations of or additions to the Software performed by parties other than Licensor or under the direction of Licensor; or (iii) use of the Software in a manner other than as contemplated in the Documentation.

2 Licensor has no obligations to provide Maintenance and Support other than in respect of the Current Version.

3 If any Maintenance and Support is required to be delivered other than from the offices of Licensor, Licensee shall pay the Onsite Support Fee (including travel time) and Licensor's reasonable travel, subsistence and other expenses where the same have not already been provided by Licensee.

4 Within thirty (30) days of each month end Licensor shall submit an invoice for any onsite support which it is entitled to charge and any expenses incurred. All invoices shall be accompanied by such personnel timesheets, vouchers, receipts and other materials as reasonably required by written notice by Licensee. Licensee shall pay the amount of said invoice within fourteen (14) days after receipt thereof.

5 Under no circumstances does Licensor warrant or represent that all errors can or will be corrected.

7.3.5 TERM AND TERMINATION

1 The term of Maintenance and Support shall take effect on the Date of the Order and shall remain in effect for one year. The term of Maintenance and Support shall automatically renew at the end of each term for an additional term of one (1) year unless either party notifies the other of termination at least thirty (30) days prior to the end of the then current term.

7.4 SCHEDULE D: INSTALLATION SERVICES

7.4.1 DEFINITIONS

1 "Installation Services" shall mean:

  a) the installation of the Software;
  b) configuring the Software and Equipment; and
  c) delivering the Equipment to the Licensee's location

7.4.2 SCOPE OF SERVICES

1 Licensor shall provide the Installation Services.
2 Licensor will retain the sole and exclusive right to control the manner and means by which the Installation Services are performed. Licensor may subcontract the performance of the Installation Services.

7.4.3 LICENSEE'S DUTIES AND RESPONSIBILITIES

1 Licensee shall make available in a timely manner at no charge to Licensor all of its systems and resources reasonably needed by Licensor to perform the Installation Services.

7.4.4 RELATIONSHIP OF PARTIES

1 Licensee agrees that for a period of six (6) months following the provision of any Installation Services, it will not make any offer to engage any employee or contractor of Licensor as an employee or contractor of Licensee.

7.4.5 FEES

1 Any installation service required will be billed at the Installation Fee per hour (including travel time). Licensee shall pay to Licensor the Installation Fee. Licensor shall invoice Licensee on a biweekly basis in arrears.

7.4.6 EXPENSES

1 Licensee shall reimburse all reasonable travel and other related expenses incurred by Licensor in the performance of the Installation Services.

7.4.7 TERM AND TERMINATION

1 The terms and conditions of this Schedule will take effect on the Date of the Order and will remain in effect until all of the Installation Services have been completed, unless terminated earlier in accordance with the Agreement.

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