

ShelfNet™ System

Planning and Installation Guide

June 1999



Electronic Retailing Systems International, Inc.
488 Main Avenue
Norwalk, CT 06851-1007

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Send Inquiries or comments to:

ERS International, Inc.
488 Main Avenue
Norwalk, CT 06851-1007
Voice: 203 - 849 - 2500
Fax: 203 - 849 - 2501

USA Electronic Emission Notice

FCC Radio Frequency Interference Statement

The ERS products discussed in this document control the ERS EasyLabels Shelfnet™ system. The ShelfNet equipment in this system has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment uses and generates radio frequency energy. If this equipment is not installed and used in accordance with the instructions in this document, harmful interference to radio communications may result.

User Information

This equipment complies with Part 15 of the FCC rules. Operation is subject to the two following conditions:

1. This equipment does not cause harmful interference.
2. This equipment must accept any interference received, including interference that may cause undesired operation.

User Caution

The Federal Communications Commission warns users that changes or modifications to this equipment not expressly approved by ERS may void the user's authority to operate this equipment.

Canadian Electronic Emission Notice

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

The Active Cell Antenna (ACA) discussed in this document complies with RSS-210 of Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference, including interference that may cause undesired operation of the device

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ShelfNet System Glossary

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Welcome To The ShelfNet System

i. About this Publication

The ERS ShelfNet[®] System is an electronic shelf label system consisting of proprietary ERS hardware components and the ShelfServer[®] software application that manages this hardware. It is installed in the retail environment to maintain price information on Electronic Shelf Labels (ESLs). It does so by interacting with the store's central computer to obtain current price information and then displaying these prices on ESLs mounted at the shelf edge. This ensures that the price the customer sees in the aisle matches the price charged at the checkout register. The Planning and Installation Guide describes the procedures that you perform to plan and install a ShelfNet System in a typical retail environment.

This is a *Planning* and *Installation* guide. It is intended for personnel who will plan the system layout and/or install a ShelfNet System. As one of these persons, you are expected to refer to this guide to answer questions and resolve issues that arise regarding the planning and installation of the ShelfNet System.

ii. Organization

This document is designed as a *guide*. Always refer to your immediate supervisor or the ERS Installation Manager for questions concerning procedures at a specific site. This guide consists of the following major sections:

1. *Chapter 1. Pre-Installation Planning* provides a brief overview of the tasks that need to be completed in order to install a ShelfNet System into a retail facility. It will guide you through the store survey process and provide information on how to create a ShelfNet Layout Installation Plan.
2. *Chapter 2. Hardware Installation* will describe the proper method of installing each of the hardware components normally required in a typical ShelfNet System installation.
3. *Chapter 3. ShelfServer Installation* includes information pertaining to the installation and functionality of the ShelfNet System software.
4. *Chapter 4. System Verification* describes the post installation tests required, and how to perform these tests in order to verify the proper installation of a ShelfNet System.
5. *Chapter 5. Commissioning ESLs* provides information on how to commission ESLs using the handheld terminal application during the mass deployment of ESLs, normally asso-

- ciated with the initial installation of a store.
6. *Chapter 6. Troubleshooting* addresses the troubleshooting of blank wireless ESLs.
 7. *Appendix A. Programming the EAP and Handheld Terminal* addresses the installation and setup of the Aironet Ethernet Access Point, as well as the procedure for configuring the Handheld Terminal.
 8. *ShelfNet System Glossary* defines various names and terms used in this guide.

iii. Typographical Conventions

Several type faces and text formats are used throughout this guide. Please refer to the following formatting in the text to help you identify special information.

Format:	Type of Information:
Bold type	Words and characters in bold type are used to introduce a new term.
<i>Italic type</i>	Words and characters in <i>italic</i> type are used to emphasize particular words. They are also used to indicate <i>section titles, heading titles, names of ERS reports, file names</i> and other <i>ERS manual titles</i> .
this font	Words and characters in this font indicate titles of ShelfServer menu items, screens, windows and any characters and words that may appear in the ShelfServer user interface . These words and characters are also used to indicate keyboard commands.

iv. Keyboard Conventions

Before you begin using ShelfServer, it is important to understand some of the navigation keys and how they are used within this user interface. For purposes of this documentation, keys will be represented by a key symbol, for example, the Enter key will appear as .

Keys:	Description:
 or  + 	This key (or key stroke combination) allows you to backup from a particular screen and return to the previous screen. You may also use this key to get back to the ShelfServer Main Menu .

Keys:	Description:
 (Tab key)	This key allows you to move from field (or grouping of fields) to field in a screen.
	This key allows you to move up one item in a grouping of fields and/or menu items.
 + 	This key stroke combination acts like  .
	This key allows you to move down one item in a grouping of fields and/or menu items.
 + 	This key stroke combination acts like  .
	This key allows you to move to the previous page if you are in a list.
 + 	This key stroke combination acts like  .
	This key allows you to move to the following page if you are in a list.
 + 	This key stroke combination acts like  .
	This key acts as backspace and allows you to move back one character in the text entry field.
 +  or <Backspace>	This key (or key stroke combination) allows you to delete the current character in the text entry field.
 + 	This key stroke combination allows you to go to the beginning of the text entry field.
 + 	This key stroke combination allows you to go to the end of the text entry field.

The result of pressing the  key depends on the item in the screen that currently has focus. For example:

Screen Item:	Result of pressing  :
text entry field	Commits the value entered and moves to the next field or grouping of fields.
push button (an example of a push button is a button like OK , Yes or No)	Activates the button.
radio button (a radio button provides a selection for one out of several choices)	Selects the highlighted choice and moves to the next field or grouping of fields.
list of items (e.g. a list of products)	Selects the current item highlighted in the list.

Caution:

Special keyboard keys, when using UNIX[®], may be mapped to the ASCII codes  +  or  +  (for example, the  key). Hitting one of these keys may cause the SSUI to close and return to a UNIX prompt. If you accidentally hit one of the keys and the user interface does close, simply log back on to ShelfServer; refer to *Logging On* in the User's Guide.

Chapter 1. Pre-Installation Planning

Various tasks need to be completed prior to installing a ShelfNet system into a retail facility, including on-site tasks to determine what existing conditions need to be considered and what resources will be required.

This section is designed to guide you through the store survey process and provides information on how to create a ShelfNet Layout Installation Plan. This includes ACA and MCC placement design, as well as cabling information and time slot assignments.

1.1 Preparation

All of the procedures in this guide are performed by various members of the installation project team. Each member may not always have specific tasks required of them, but the initial participation affords the opportunity for input if required. Members of this team typically are representatives from the following:

- Project Management
- Marketing/Sales
- Installation Group
- Customer Support
- Training Department
- System Integration
- Customer

Each member of the team may have various information-gathering and layout tasks to perform. However, it is the Sales Executive that is responsible for managing the overall relationship with the customer at all levels of the organization.

1.1.1 Required Tasks

This chapter takes you through the entire survey and layout process. Checklists that correspond to the appropriate survey forms are provided that lead you question by question.

The procedures you will perform are:

1. Create a store layout drawing.
2. Survey the site for existing equipment.
3. Add ACAs to the drawing based on requirements of the store.
4. Add MCCs to the drawing based on the requirements of the store.
5. Add MCC ports to ACAs on the drawing.
6. Add timing slots to ACA's.
7. Fill out appropriate survey forms based on information from drawings and checklists.

1.1.2 Required Materials

Before you begin any of the procedures described in the following sections, review the following sample of equipment and materials that may be required. This list may change depending upon the location or installation requirements. Check with your manager to determine the appropriate materials required for the specific installation:

- ShelfNet Installation Tool Kit
- Range finder
- Attachment Kit
- Powerlift, portable scaffolding or ladder as required
- Flashlight
- Grid paper
- Colored pencils
- Blueprint of the store layout if available.

Some of these materials come as part of the survey kit while other materials may have to be obtained as required, such as the powerlift and store blueprint.

1.2 Creating the Store Layout

This section provides information on creating a store layout drawing and site survey. Ideally, a blueprint of the store provided by store management is an excellent place to start. Either a printed hard copy or electronic soft copy may be used, but a soft copy in .dxf format is preferred. This will

show you aisle lengths, widths, shelf placement, and so on. It also gives you an idea of where existing equipment is laid out and where new equipment space is available.

If a blueprint of the store cannot be obtained from store management, you will need to create a store layout diagram based on on-site sketches and measurements that you can use to display how you will layout the installation.

1.2.1 Initial Layout

If you have the facility layout blueprints in printed format, you can complete this task by simply placing a sheet of grid paper over the print and then tracing every aisle, freezer location, and other displays.

The sketch you make will grow as you begin to add Server, ACA, MCC, Hub, and EAP locations as well as other components that may be required for that particular site. Each of these pieces will be added as we complete the following sections.

The following diagram is an example of the type of sketch you need to create at this point.

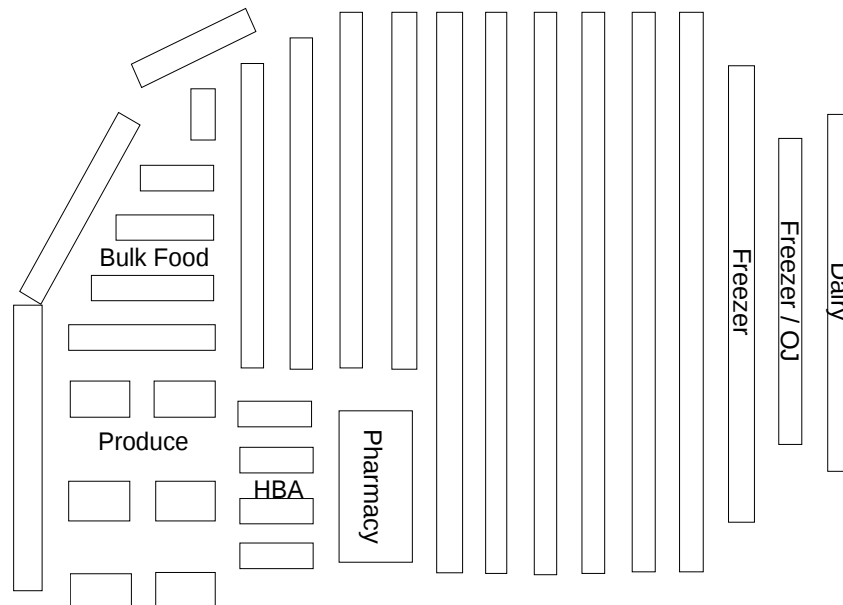


Figure 1-1. Sample Store Layout Diagram

You are going to add more to this sketch as you perform the site survey, so make sure that you leave room for additional information. You will carry this sketch with you out onto the floor and add to it as you begin to enter site survey results on the Site Survey form.

1.2.2 Procedure

The Site Survey checklist represents what should be added to the drawing as you proceed through each item. Some of this information includes:

- Accurate measurements of each aisle, specialty displays (such as advertising specials), fruit and vegetable areas, freezers, etc.
- All existing wall positions in relationship to the ShelfNet system coverage area.
- All existing power receptacles and required measurements.
- Location of existing equipment such as an existing host system, hubs, printers, etc. Be sure to include measurements between components.
- Placement of ACAs within each aisle.
- Placement of MCCs as well as the location of the host, printer, hub, etc.
- A breakdown of the number of gondolas within a specific aisle.

It is important to get this initial drawing as accurate as possible. Once you have your preliminary store layout sketch complete, perform the site survey using the following site survey checklist, and add the information obtained to the drawing and appropriate form(s) as required.

1.3 Performing the Site Survey

A site survey basically consists of surveying the store to obtain information in order to make a decision as to how an ERS installation should be laid out at that site. This is accomplished by use of the Site Survey checklist, which provides a means of simply obtaining information.

The information you collect on this survey will help you create your store plan as well as provide a means of ordering the materials you will need to complete the installation. Most of the checklist is designed to be self-

explanatory, although certain questions on the list may require more explanation. If you don't understand a specific question, refer to the sections that follow in this chapter or ask your supervisor for clarification.

At this time you can take your Site Survey checklist, your store layout diagram, and those available items listed previously under **Required Materials** (such as a tape measure) to the store and answer each checklist item. You may need to contact the store manager in order to get specifics not covered on the blueprint or that may not be readily obvious.

1.3.1 Prerequisite Information

Obtain required basic information such as the store location, store number, store manager, contact person, phone number, person conducting survey, date of survey, etc., and enter this information in the appropriate locations on the survey form.

1.3.2 Site Survey Checklist

The Site Survey checklist is a series of questions divided into categories that allow you to add information to your store layout sketch in the order that you need the information.

1.3.2.1 Host System Checklist

Is an optional ERS Server Required?

Will ERS be providing a server for the site? Some sites may choose to install the ERS software on their own system, however ERS recommends that ShelfServer be run on a system different from the ISP.

Where will the optional server be placed?

Check with store personnel to determine where the server should be placed. You should also note this location on the Store Layout Diagram. If its a computer room, just enter the words "computer room" and add any other pertinent information about the location.

What are the actual dimensions of the area available to place the server?

Enter the exact dimension available to place the server. You should inspect this area for any obstructions or possible abnormalities. Sketch the area on one of the worksheets showing the actual dimensions.

What are the number of AC outlets in the area where the server will be placed?

Count the available AC outlets in the intended server area and enter this number. Note the locations on the worksheet. Also note if other pieces of

equipment are currently using these outlets. Talk to store personnel to determine how many outlets are actually available.

Five 120v outlets are required for the ShelfNet system, to be utilized for each of the following:

- UPS to power the Server
- UPS to power the MCCs
- Ethernet Access Point
- System Printer
- External Modem

Will new outlets have to be added to support an optional server?

After consulting with the store manager, determine whether additional outlets will be required to provide power to the server. Make a note that these outlets are for the server only. Other ERS equipment will also require additional power such as MCCs, hubs, printers, etc. Information on these requirements will be entered later.

Does the store communicate with a mainframe computer at store headquarters?

Check to find out if the store communicates with a mainframe computer at a main office. If so, enter yes in the survey result field.

What is the approximate distance between the store's ISP and the proposed location of the ERS server?

Take an approximate measurement between an existing ISP and the proposed location of an ERS server. Enter your result in feet and inches. Sketch the placement of the ISP and the proposed ERS server on the back of the worksheet. Show the dimensions on the sketch as well.

Where will the Ethernet hubs be located?

Enter the location where the hubs will be located. For example, if the hubs will be in the same room as the ERS server or MCCs, enter the name of the room where these devices will reside. You should also mark this on the Store Layout Diagram and on the sketch on the back of the worksheet with dimensions from other objects.

What will be the distance from the ISP or ERS server to an Ethernet hub?

Enter the distance from the proposed ERS server location or ISP location to the nearest Ethernet hub. If no hub exists, enter "No hub present".

1.3.2.2 Existing Peripherals Survey

Does a system printer exist at the site?

Enter yes if a printer exists or no if one will have to be supplied by ERS.

If a printer exists, what type of printer is it?

Enter the name and model number of the printer currently installed at the site. This information is used to determine possible compatibility issues with any ERS equipment and ShelfNet software.

What is the proximity of the printer to the ISP or server?

Is the printer in the same room as the server or ISP? Measure the distance between it and the ISP and the ERS server. In addition, enter the approximate location of the printer on the sketch on the back of the worksheet. In addition, if it is located a far distance from either the ISP or the proposed ERS server location, enter the location on the Store Layout Diagram as well as the sketch on the back of the checklist.

1.3.2.3 MCC Placement Survey

Where will the MCC's be located?

Enter the location of where MCCs will be located when installed. This may be the same room as the ERS server or in a completely different room. You should add the location to your sketch on the back of the checklist and to the Store Layout diagram. Include distances from the ERS server.

What will the distance be between the MCCs and an Ethernet Hub?

Enter the approximate distance between where MCC's will be installed and where the Ethernet hub is or will be located. This information is important for cable order/building purposes.

1.3.2.4 General Layout Information

What are the exact wall positions/dimensions?

Measure the walls in the store and mark the dimensions on the Store Layout Drawing. Include all walls including those installed for offices, bakeries, etc. Use the back of the checklist to make more detailed drawings.

Will modifications be required to existing walls?

Note any areas that may require modifications. For example, holes drilled for cabling, MCC mounting, RF frequency blocking obstacles, etc. Give the exact locations or show it on a sketch on the back of the worksheet.

Are there any existing RF transmission sources such as microwave ovens?

Note all sources and mark them on the Store Layout Diagram. Other RF sources can affect ERS system resources.

Are there hand-held systems currently used in the store?

Check with the store contact to determine if other electronic hand-held devices are currently in use in the store.

Does any fluorescent lighting present any placement problems for future ACA placement?

Fluorescent lighting can send out low RF transmissions. Care should be taken when placing an ACA too close to one of these sources. Note if more ACAs may have to be added to compensate for these obstacles.

1.3.3 Aisle Survey

The aisle survey is designed to provide the information you need to determine quantity and placement of ACAs. In addition, some information obtained during this survey will be used later when ordering the materials required for the complete installation job.

You use the Aisle Survey checklist to obtain this information, starting with the first aisle and proceeding until all aisles/locations have been completed. Enter the information obtained in the appropriate location on the Aisle Survey Form, Store Layout Diagram, or both when required.

It is important to remember that there are various types of aisles that you have to consider when performing the survey. Each type of aisle presents you with special features that require special consideration when making ACA placement decisions. For our purposes, we will define aisle types as follows:

Standard Aisles -- These are the longer aisles that normally run through the center of the store. These are the major aisles that contain most of the standard items.

End Caps -- These are displays that are normally found at the end of standard aisles that may include items on sale or special deals.

Freezer Aisles -- Although not always an aisle, freezers must also have ACA coverage and the appropriate information must be obtained for proper ACA coverage and placement. In addition, special free-standing freezers also need coverage.

Temporary Displays -- These include displays that you sometimes find in the middle of an aisle, or sometimes between the checkout registers and the standard aisles.

Each of these aisle types present their own coverage requirements and

special care must be taken to ensure accurate measurements.

Most of the checklist is designed to be self explanatory, however if you don't understand a specific task, ask your supervisor for clarification.

1.3.3.1 Measurement Guidelines

Standard Aisles

Standard aisles are measured simply by getting at one end of the aisle and then measuring to the other end. Mark the actual footage for each of the standard aisles. Be sure to measure the whole aisle, including the wings of the end caps (side of end cap from where end of normal aisle without end cap would be to front edge of end cap). Do not include anything else, such as specialty displays near the end of the aisle, in this measurement.

End Caps

End caps should be measured as though they are another aisle. Since end caps will be at the end of an aisle, you can measure them all as though they are one long aisle. That is, you would measure the distance of all the end caps from each aisle as shown in the following diagram.

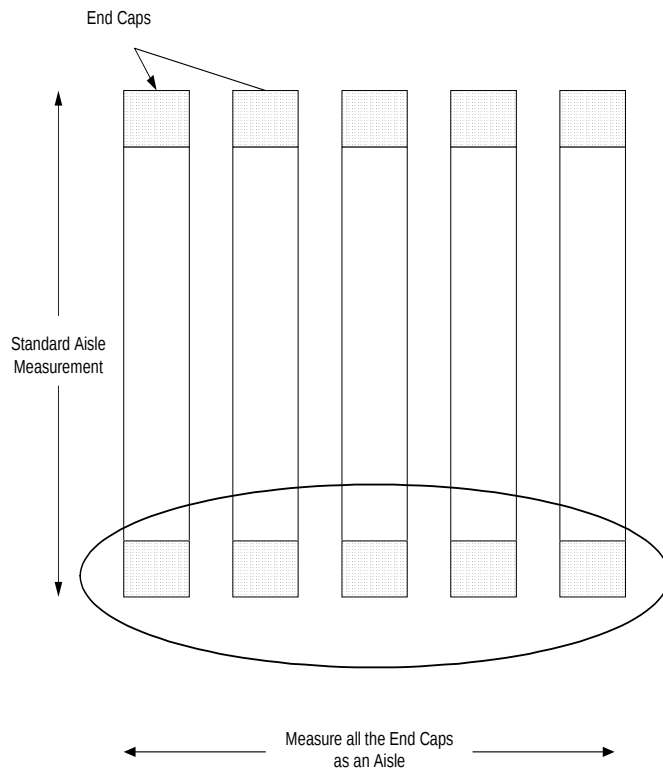


Figure 1-2. End Cap Measurements

Start at the end cap in aisle 1 and measure in a straight line to the last end cap in that line. End caps are not covered by the same ACA's that cover standard aisles.

End Caps to Specialty Displays

In addition to measuring end caps as an aisle, you must also take measurements from end caps to specialty displays. Any type of specialty display will also be covered by the same ACA that services the end caps. Therefore you will need a measurement from the end of the end cap to the far end of the specialty display. The following diagram shows these measurements.

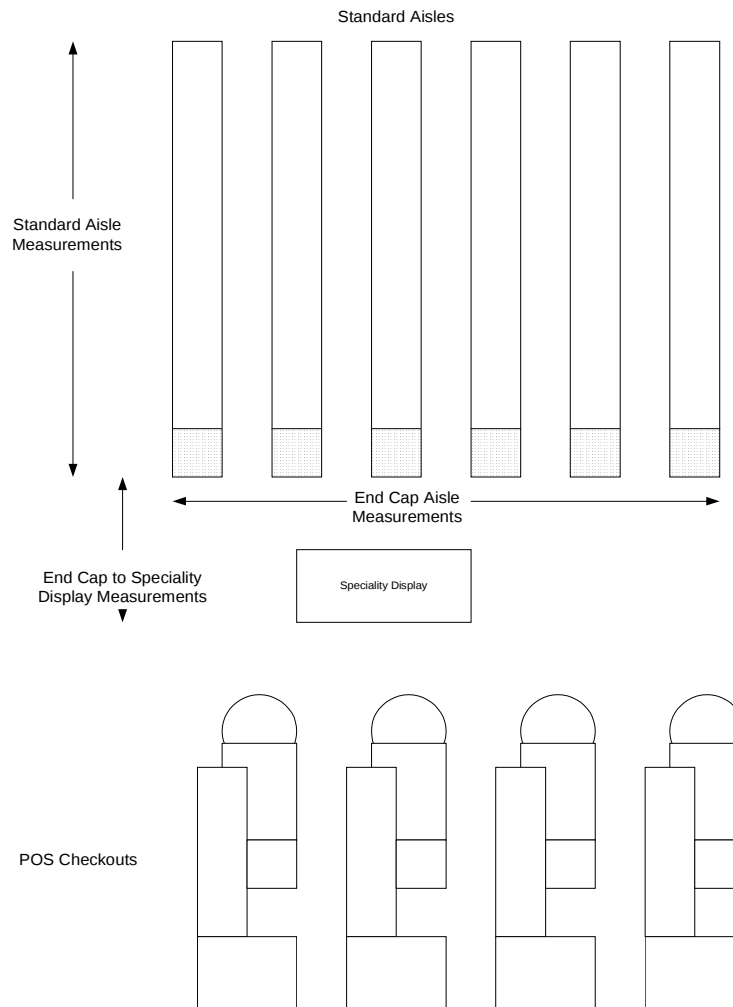


Figure 1-3. End Cap Aisle Measurements

The far side of the specialty display (the side furthest from the end cap) cannot be any more than 20 feet (the width of the antenna cell coverage) from the front edge of the end cap. If the display is further than 20 feet, it cannot be covered by the same ACA covering the end cap aisles. If this is the case, be sure to note it on the checklist. It is also a good idea to mark these dimensions on the Store Layout Diagram, the store blueprint, or on an overlay placed directly over the Store Layout Diagram.

End cap aisles and end cap to specialty displays on the other end of the standard aisle also need measurements taken.

Closed Door Freezers

Measure the length of all closed door freezers in the store that will be using ESLs. You should also make note of each freezer on the Store Layout Diagram with its associated length.

At this time you can take your Aisle Survey Form, Aisle Survey Form Procedures, Store Layout Diagram, and other items listed previously under ***Required Materials*** (such as a tape measure), to the store to collect the required data.

1.3.3.2 Aisle Survey Procedure

Store Name and Date:

Enter the Store Name and Number, and the date of the survey.

Gondola Name:

Label each gondola with its specific name. On the Aisle Survey form, enter as shown in the following example:

Gondola Number	Gondola Name
1	1A
	1B

Figure 1-4. Survey Form Gondola Entry

Gondola length:

Measure the length of the gondola and enter in the appropriate column on the Aisle Survey form. Count the number of 3-foot and 4-foot sections of the gondola and add them together for the exact length in feet.

Aisle Width:

Measure from one side of the aisle to the opposite side, measure from kickplate to kickplate. Measurement should be in feet.

Ceiling Height:

Ceiling height should be measured in feet. A range finder should be used if available to obtain exact figures. Be sure to measure all aisles and areas for variances.

Number of ACA's:

Estimate the number of ACA's needed for full aisle coverage, by aisle.

Cell size in standard aisle is defined as 50 ft. X 20 ft.

Cell size in freezer aisle is defined as 28 ft. X 15 ft.

Generally speaking, standard aisles will require two ACA's and freezer aisles will require three ACA's. If a standard aisle were 80 feet in length, split the aisle in half, creating two 40 foot sections. Split the 40 foot section in half again, and the mid-point (20 feet) in the aisle is the desired location of the ACA. This would be true for the front as well as the back of the aisle.

If there are any obstructions that may interfere with the placement of the ACA (such as lights) and you are unsure of where to locate it, contact your supervisor, the Installation Coordinator or Engineering Support to assist with the ACA location selection process.

MCC to ACA Cable Length:

MCC to ACA cable lengths can not exceed 250 feet per run when using standard cable (RG-58). If the run will be longer than 250 feet, special low-loss cable (RG-8) must be used. For installation planning purposes, the amount of standard cable required is determined by dividing the total number of ACAs required for the installation by 2, and rounding to the next 500 foot increment. This will equal the number of 500 ft rolls (one 500 ft roll per box) required. Basically, this amounts to allowing for the maximum of 250 feet per antenna. The main concern is to note if any cabling runs may exceed the 250 foot limit for standard cable, thereby necessitating the use of low-loss cable or additional hubs.

To assist in estimating cable lengths, three factors should be known:

- 1) The length of the store.
- 2) The width of the store.
- 3) The location of the installed MCC's.

Use the ceiling tiles as a guide for estimating distance, they are generally 2 ft X 4 ft in size.

Estimate cable length for the furthest ACA:

Estimate the cable length needed to reach from the installed MCCs to the furthest ACA, when the cable is run parallel to exterior walls and not diagonally and directly from point-to-point across the store.

Number of Ceiling Attachments Required:

Calculate the number of brackets needed according to the number of ACAs. Determine the number of ACAs that will be attached to suspended and open ceilings, and allow for 2 brackets per ACA.

Rails:

Measure and count the number of rails, by length, in each half aisle. Then measure all endcaps and freezer rails, and enter the totals in the columns provided on the Aisle Survey form. If necessary, add a column for any odd rail sizes not listed on the survey form.

ESLs:

Estimate the number of ESLs by size for each half aisle.

Peghook Attachments:

Estimate the number of peghook attachments by type of attachment.

No Tags - There is nothing to hang an ESL on.

Plastic - There is a flat surface enabling an adhesive clip to be put on.

Plastic Tags - There is a "C" channel, or a small piece of shelving to accommodate an individual "C" channel attachment.

Obstacles:

Indicate any obstacle that may interfere with the RF antenna transmitting data to the ESL's. An example would be a canopy, a sign, a pole, etc.

Note:

Besides entering the necessary information on the Aisle Survey form, make sure that you enter all pertinent information on the store diagram, to include all aisles and locations of the Host System, MCC's, ACA's, etc.

1.4 Create Port and Slot Assignment

After the site and aisle surveys have been completed, you will need to determine the proper MCC port and slot assignments for each ACA. In order to accomplish this, you first need to identify the placement of the ACAs within the store.

1.4.1 Identify Antenna Placement

Once all of your measurements are taken, you can begin to layout the placement of the ACAs. ERS recommends that you mark the placement directly on the Store Layout Diagram or on an overlay placed over the diagram.

The standard ACA produces an RF distribution pattern that is in the shape of an oblong oval approximately 25 feet long by 20 feet wide in each direction, for a total coverage area of 50 ft X 20 ft in both forward and reverse directions. In order to determine the proper placement of the ACAs for each aisle, simply find the length of the aisle, then divide that length by the size of the RF distribution pattern. That is, 50 feet for a standard antenna or 28 feet for a freezer antenna.

For example, if aisle one is a 60 foot aisle, you will need two ACAs for that aisle since the ACA's range is only 25 feet long in either direction.

1.4.1.1 ACA Placement Rules

In order to place the first antenna in a particular aisle, divide the length of the aisle by two times the number of ACA's required for that particular aisle. For example, if you use the previous scenario (Aisle 1 being a 60 foot aisle), the placement of the first ACA would be determined as follows:

Length of Aisle divided by (2 x Number of antennas)

or

60ft divided by 4 (which is 2 times the two required ACAs)

equals

15 feet

Using this calculation, you would place the first ACA 15 feet in from the beginning of the aisle. Mark the first ACA in that aisle on the Store Layout Diagram as a box and number it #1. Show the measurement on the diagram as well.

Since aisle 1 requires 2 ACAs, the placement of the 2nd ACA is determined by performing another distance calculation. This time, multiply the position of the first antenna by 2. In this case, the first ACA will be placed 15 feet in from the end of the aisle. The 2nd ACA for that aisle will be placed 30 feet from the end of the aisle. Draw the second ACA on the Store Layout Diagram and note the measurement. The following figure illustrates what you should have so far.

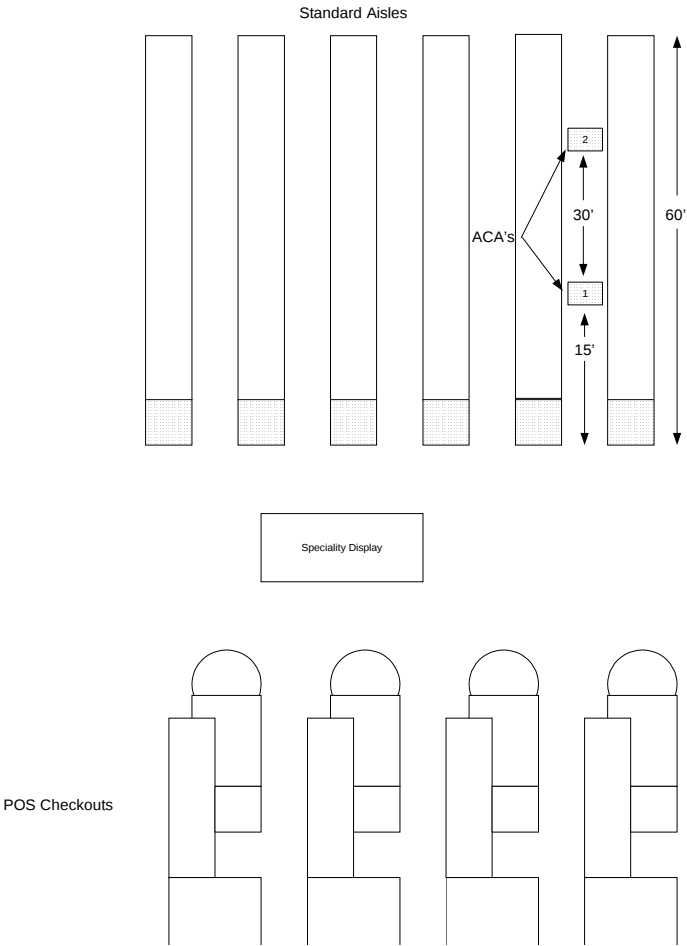


Figure 1-5. ACA Placement

Perform the same procedures for each standard aisle.

1.4.1.2 ACA Placement for End Caps and Specialty Displays

The same rules apply when placing ACAs for end caps and specialty displays. The difference is, you want to maintain coverage for both the end caps and specialty displays with the same ACA. Up till now, when we talked about ACA placement in the standard aisles we were mainly concerned with the cell coverage for the length of the signal (the "E" plane) of the ACA, to ensure that the entire length of the aisle had coverage. The cell coverage for the width of the signal (the "H" plane) was not discussed. That is because we know that the coverage area on this plane is 20 feet, and most standard aisles are less than 20 feet wide, so we can reasonably assume that the coverage of both sides of the aisle will not be a major issue.

Now, however, since we want to make sure that we cover both the length of an end cap aisle as well as including any specialty displays that fall within the range, we need to pay closer attention to the H plane as well.

The measurements that we took from the end caps to the specialty displays tell us what areas we need to concentrate on. For example, if all specialty display ends are within the 20 foot range measurement, we want to cover both the end cap and the specialty displays at once. That is, treating the end caps and the specialty displays as though they were each on the opposite side of a standard aisle.

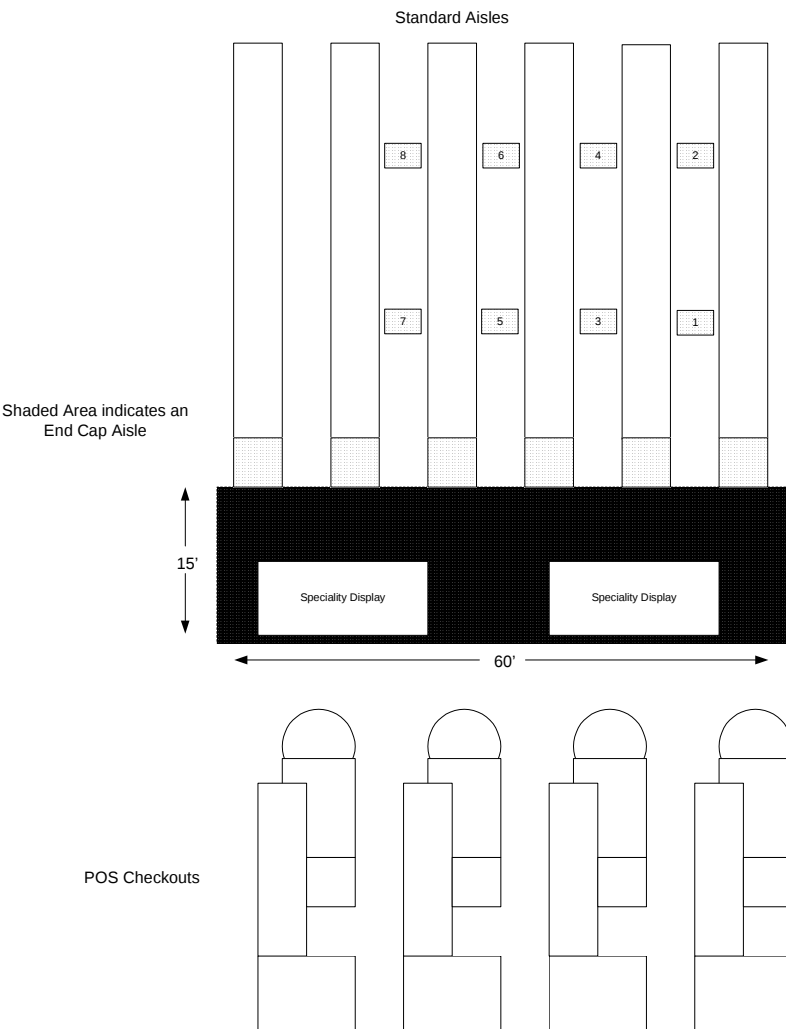


Figure 1-6. End Cap Aisle Coverage Area

Here we want to make sure that both the length and the width of the aisle are covered properly. In this case, we would place the ACA in the center of the end caps and the speciality display. Again, we use the same method to measure distances from ACA to ACA. Since this aisle is 60 feet long and will require 2 ACAs, the first ACA is placed 15 feet from the end of the aisle and the second ACA is place 30 feet from the first ACA in that aisle.

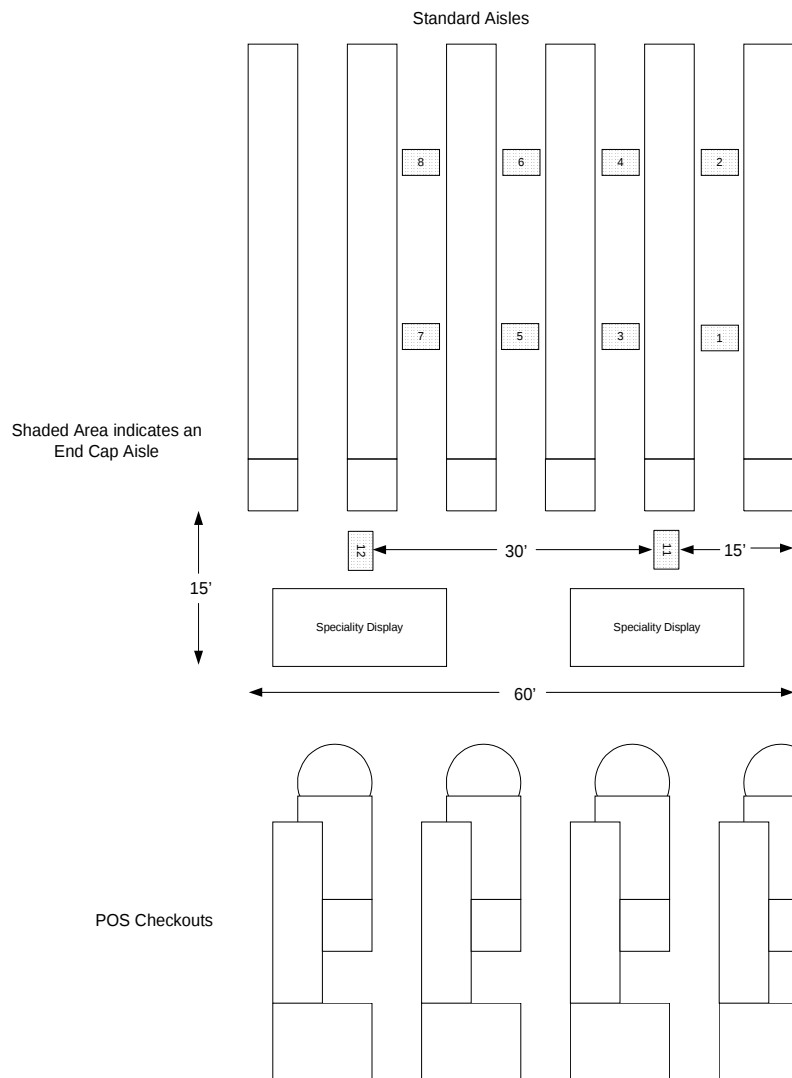


Figure 1-7. End Cap Aisle ACA Placement

Perform the same task until coverage for all end cap aisles is complete.

1.4.2 Identify MCC Port and Slot Assignments

Now that you have the placement of the ACAs established, you need to assign MCC ports and slots to each ACA. There are rules that you need to follow in order to make proper port assignments.

First, no two adjacent ACAs (within 60 feet) can be transmitting during the same time slot. An ACA transmitting on MCC 1 slot 1 can not be adjacent to an ACA transmitting on MCC 2 slot 1.

Second, no two adjacent ACAs can be transmitting during adjacent time slots. An ACA transmitting on MCC 1 slot 1 can not be adjacent to an ACA transmitting on MCC 1 slot 2 or slot 0.

Since two adjacent ACAs on the same slot or adjacent slot cannot transmit at the same time, we resolve this problem by assigning timing slots to each port on an MCC, in order to have adjacent ACAs separated by at least one time slot when possible.

1.4.2.1 The Alternating Pair Scheme

The alternating pair scheme of port assignment provides good separation. This scheme reasonably ensures that no two adjacent ACAs fire at the same time. Simply put, assigning ports in alternating pairs (0,2,4,6,1,3,5,7) ensures adequate separation.

Do not attempt to design an 8-slot plan for installations with standard aisles greater than 100 feet in length, or freezer aisles greater than 56 feet in length. If the rules in section 1.4.2 above are followed, it is impossible to create an 8-slot plan for any installation where there are three or more ACAs within any one aisle that have end caps on those same aisles that require ACA coverage.

The following diagram shows port assignments using this scheme. As you can see, the first 8 ACAs in the standard aisles are assigned ports on an 8-port MCC.

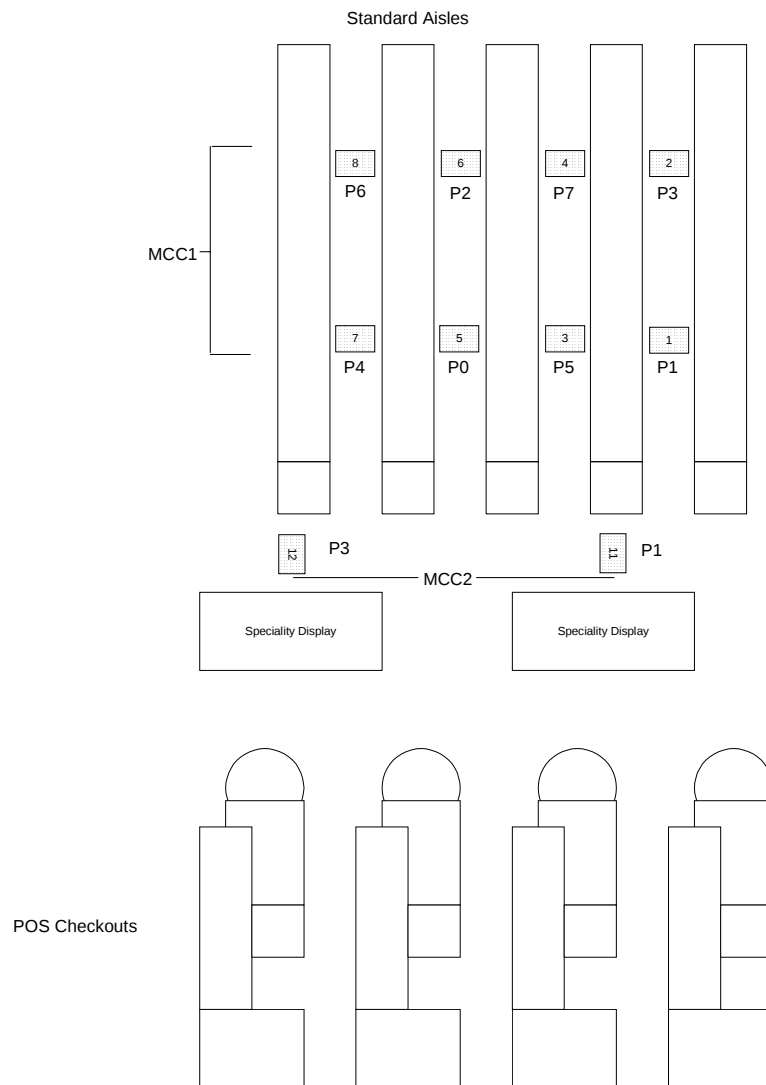


Figure 1-8. MCC Port Assignments

The two ACAs in the end cap aisle are assigned ports on a different MCC (MCC2). Perform this process for all ACAs in the installation and make the entry on the Store Layout Diagram or on an overlay to that diagram.

1.4.2.2 Assigning Timing Slots

If you use the alternating pair scheme, you often can assign timing slots in the same manner you assigned the ports. Since the ports are already alternating, assigning the same number timing slot often will ensure that no two ACAs fire at the same time.

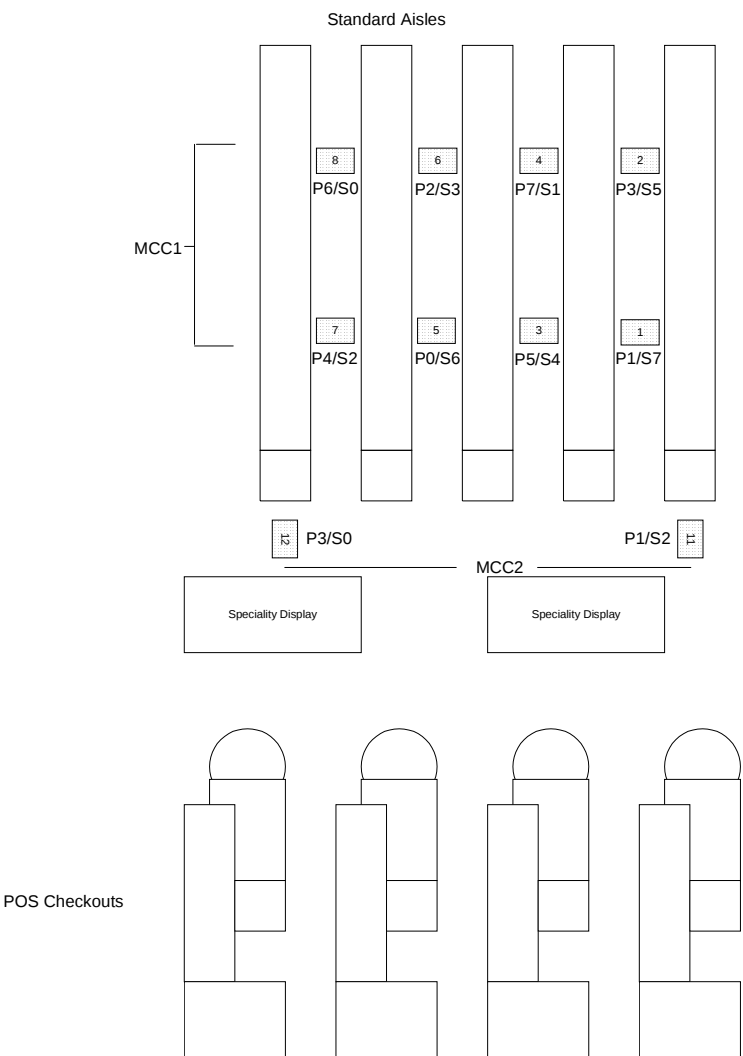


Figure 1-9. Timing Slot Assignments

In this example, ACAs in the standard aisle could not have timing slots that correspond with the port they are assigned to because there would have been adjacent ports or slots. With the design shown, no two adjacent ACAs with the same slot or adjacent slot will fire at the same time. In this case, ACA 5 fires first, followed by ACA 1, followed by ACA 6, and so on.

It is also very important to note that the two ACAs in the end cap aisle (ACAs 11 and 12) in this example do not have Slot assignments that correspond to Port assignments, to help eliminate any concurrent transmissions between adjacent ACAs. These two ACAs are also assigned to ports on a different MCC (MCC2). A major rule is that adjacent ACAs cannot have timing slots that are the same, therefore the slot assignment on these two ACAs do not match the ports that were assigned even though the ACAs are connected to different MCCs.

Because of the RF frequency range being used, we do not want ACA 11 and ACA 1 to fire at the same time, even though ACA 11 is on a different MCC. In this type of situation, you must assign timing slots that ensure this. Timing slot 2 was chosen since ACA 7 which also uses slot 2 is far enough away so that the cells will not overlap. Because ACA 11 and ACA 7 are out of range of each other, there is no danger here of RF frequency overlap and therefore timing slot 2 is safe to use.

1.4.2.3 Identification Format

At this point, ACA placement design is completed and each ACA has been assigned a port and slot. The numbering in the previous figures was set up for illustration purposes. The actual identification format differs somewhat. In the previous example, P1/S7 stood for Port 1/Slot7. In order to truly identify the actual assignment, we need to add the ACA cable number and the MCC assignment to our diagram.

The Identification format is as follows:

ACA cable# - MCC# - Port - Slot

Therefore, the correct identification for ACA 1 is:

C1-M1-P1-S7

This is how you should identify each ACA on your completed store layout diagram. This identification will also make up the identification tags on the cables leading between MCCs and ACAs. The typical placement of these identifiers on the diagram is as shown in *Figure 1-10 Identification Assignments*.

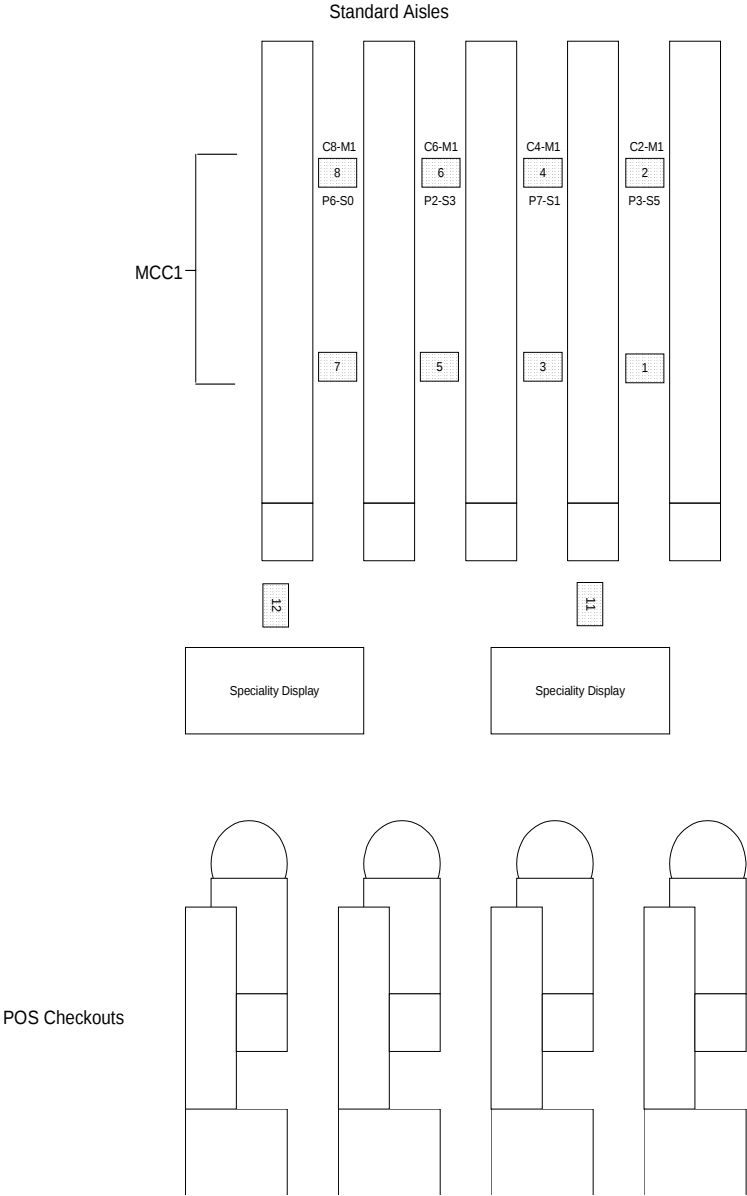


Figure 1-10. Identification Assignments

1.4.2.4 Determining Transmission Groups

A transmission group is a series of timeslots starting at 0 and ending at an even number of four (4) or more. If you specify more than one transmission group, they all must have an even number of time slots and each group must be the same size. However, you need not use all of the timeslots in each transmission group. A low number of transmission groups increases system throughput but tends to reduce cell separation. A high number of transmission groups decreases transmission throughput, but preserves cell separation.

Although there is no direct relationship between MCCs and transmission groups, there is a correlation. You can have a transmission group that crosses the boundary from one MCC to another. For example, two 8-port MCCs can make up one transmission group with 8 time slots 0 through 7 on MCC 1 and 8 time slots 8 through 15 on MCC 2. It is also possible to have two 12-slot transmission groups made up from a single 8-port MCC and a single 16-port MCC, where transmission groups are 12-time slots long.

Another available important variable within transmission groups is the ability to assign more than one time slot to any single ACA. This is particularly important in high-density areas like Health and Beauty Aids where labels are in close proximity to each other and are assigned to different time slots of the same MCC.

1.5 Location Code and Aisle Name Assignments

This section provides the typical information necessary to prepare the aisles in order to create locations and aisle names that the ShelfServer software understands.

In order to do this, barcoded stickers must be available for scanning. The barcoded stickers include:

- MCC ID Barcode Stickers
- Slot Designation Barcode Stickers
- Location ID Stickers

These stickers apply to the configuration of the particular store based on the site survey. MCC/Slot pairs and Location IDs are created based on the requirements for that site.

Location ID stickers must be placed in each aisle at a minimum of one location ID per ACA. ERS recommends however, that one sticker be placed within every 4 foot section (gondola) in an aisle. This requirement is important if you plan on using the HHT to run PowerApps.

1.5.1 Identify Location Codes

Some stores may require that the first location within a particular aisle start with a specified Location ID number. For example, the first location in Aisle 1 might start with Location ID 100 followed by locations 101, 102, 103, 104, etc. The first location in Aisle 2 may start with Location ID 200 followed by 201, 202, 203, etc.

Some stores may use an **XXYZZ** format, where **XX** is the *aisle name*, **Y** is the *side of the aisle (1=A or 2=B)*, and **ZZ** is the *section number from the front of the store*. In this example, **22104** would be *aisle 22 on the A side, four sections from the front*.

Regardless of the numbering system used, you simply check the Cell Plan to see where to start with the first label.

1.5.2 Identify Sticker Placement

Some stores may not use location stickers on the shelves to scan, but simply use the nearest ACA number for a Location ID, either entered manually or scanned from a barcode on a sheet. If Location ID stickers *are* used, stickers should be placed in an easily accessible and "predictable" location. As an example, Location ID stickers could be placed on the bottom shelf of each four foot section. If so, the sticker should be placed on the top of the shelf closest to the middle of the shelf. Care should be taken to ensure that the location ID sticker is not covered by a store product. The order or sequence that you place Location ID stickers is irrelevant as long as you have one sticker per location (4 foot section or stand-alone shelf or display).

1.5.2.1 MCC/Slot Barcode Sticker Placement

The MCC and Slot stickers may be applied to shelving or a barcode may be placed on a sheet and scanned for the needed information according to the cell plan. We need to use the cell plan to see what locations are part of what timing slot on each MCC.

The Cell plan shows the aisles and the associated MCC and timing slots. Aisles are split into four foot sections. Each four foot section represents a location. The alphanumeric representation on the cell plan indicates the MCC, slot, and port.

Once you finish applying location ID and scan stickers, you are now ready to use the hand held terminal to initialize the location ID codes described in *Chapter 5. Commissioning ESLs*.

Chapter 2. Hardware Installation

Before you begin any hardware installation procedure, you will need to know what type of equipment and how much of it you will need to successfully install the store.

Pre-installation planning, through use of the site survey process, allows you to determine the location(s) and quantities of each hardware component required. This chapter will describe the proper method of installing each of these hardware components.

2.1 Cable Preparation and Connection

As a result of the Aisle Survey process, the proper quantity and lengths of the required cables was determined. Due to local building codes, these cables are usually measured, run and properly labeled by certified cable installers prior to equipment installation.

Connections take place as each ACA is hung, however the cable at this point must be prepared (connector added) and verified to ensure that it has been marked correctly and that the cable is good.

2.1.1 Materials Required

The following is a sample of some of the items you may need to complete this task. This list may change depending upon the location or installation requirements. Check with your manager to determine the appropriate materials required for the specific installation:

- Coaxial connector dual crimp tool (RG-58, AMP 220187-1)
- Coaxial cable crimping tool (For RG-8)
- Coaxial cable stripping tool (For RG-8)
- Fluke Time Domain Reflectometer to check cables
- 8-inch cable ties
- BNC Connector Plug (AMP KC-29-294)
- Powerlift or portable scaffolding as required
- Hand-held Walkie Talkies (for communication between installers)

2.1.2 Verifying the ACA to MCC Cables

The installed MCC to ACA cable lengths must be verified prior to connection and use. This can be done using the Fluke Time Domain Reflectometer (TDR). Follow the instructions provided with the Fluke tester to check each cable.

2.1.3 Connecting the ACA to MCC Cables

Once the cables have been marked and verified, they can be connected. The ACA end of the cable should be marked with the Cable number only, while the MCC end should be marked with the Cable number, MCC number and Port number. Simply connect each end to correspond with the marking scheme (Appropriate MCC, Port and ACA number).

2.2 Installing Active Cell Antennas

The optimum mounting height for an ACA is from 12 to 15 feet above the floor. An ACA must always be installed with an unobstructed free area of at least two (2) feet beneath it. In all cases, the ACA should be at a minimum height of eight (8) feet so long as a minimum of eight (8) inches separation is maintained between the ACA and any human contact during operation.

ACAs are delivered with mounting hardware designed to suspend an ACA from a dropped ceiling. There are actually two methods in which you can hang an ACA. The main method is to hang the ACAs from T-bar frames of dropped (suspended) ceilings. A second method is used when dropped ceilings are higher than 15 feet from the floor.



Figure 2-1 Typical ACA Installation

2.2.1 Materials Required

The following is a sample of some of the items you may need to complete this task. This list may change depending upon the location or installation requirements. Check with your manager to determine the appropriate materials required for the specific installation:

- Site Survey forms
- Measuring Tape
- ACA's
- Mounting hardware supplied with ACAs
- Powerlift or portable scaffolding

2.2.2 Dropped Ceiling Installation

Each mounting package contains two drop ceiling T-bar clips and a pair of S-hooks. Before you attempt to install an ACA, ensure that you have an appropriate means to work on the suspended ceiling such as a powerlift or portable scaffold.

The first thing you should do before installing the ACA is to check the end of the coaxial cable sticking out of the ceiling. The end of the cable should be clearly marked with a label that indicates the cable number. This cable number should correspond to the ACA number.

Perform the following steps to install the ACA.

1. Taking aisle direction into account, mark the ceiling tile frame opposite the area where the coaxial cable feeds through the ceiling tile. Measure 5-inches in both directions on the ceiling frame and snap a T-bar clip in place at each measured spot.

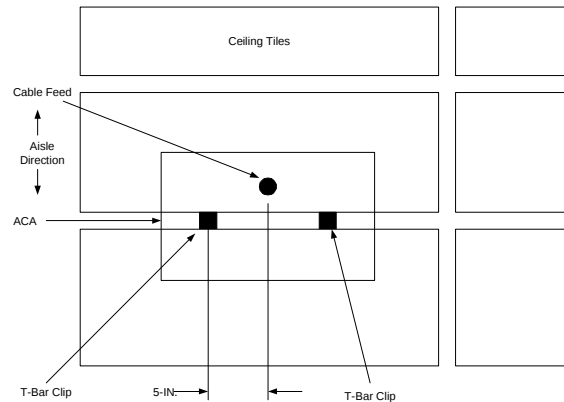


Figure 2-2 Ceiling Tile Mounting

2. Feed one end of an S-hook through one of the T-bar clip eyes and the other end of the hook through the ACA bracket eye. Do the same with the second S-hook and ACA bracket eye.

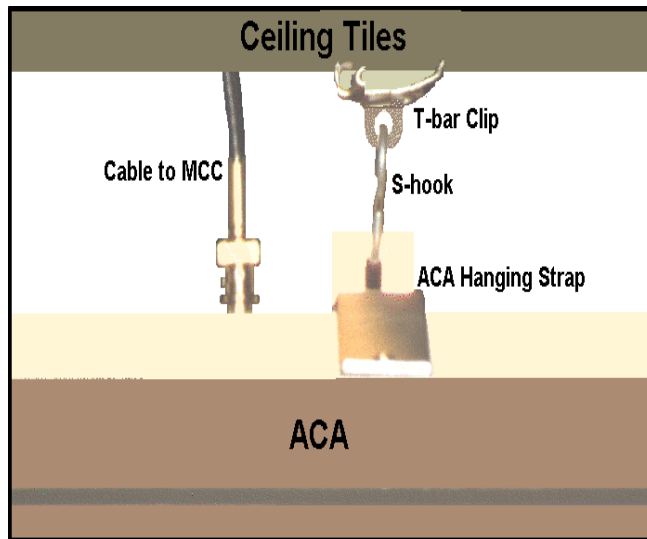


Figure 2-3 ACA Ceiling Mount

3. Make sure that the ACA is level (parallel to the floor) in both planes.

2.3 Installing MultiCell Controllers

The site survey forms indicate the number of MCCs that must be installed as well as the location where installation should take place. Once you have this information, you can begin the install process.

2.3.1 Materials Required

The following is a sample of some of the items you may need to complete this task. This list may change depending upon the location or installation requirements. Check with your manager to determine the appropriate materials required for the specific installation:

- Site Survey forms
- MCCs
- Screwdriver (Phillips head)

- Measuring tape
- 8-inch cable ties
- No. 10, 3/4-inch self-tapping screws
- Powerlift, portable scaffolding or ladder as required.

2.3.2 Mounting Preparation

MCCs are normally mounted on the computer room wall nearest the store retail area on ERS mounting brackets. MCCs can also be shelf mounted.

Before beginning any installation, a plywood panel large enough to accommodate the MCCs (at least 26-inches wide) should first be attached to the back wall. The length of the plywood panel is determined by the number of MCCs. For example, you need 14.5" for each MCC plus an additional 4" clearance requirement between each MCC. Therefore, 3 MCCs would require a plywood mounting panel 26 inches wide by 51.5 inches. The 26-inch panel width assumes that the store's inside wall studs are 24-inches on center. The customer is required to provide and install the specified panel to mount the MCCs on. Check to ensure that appropriate screws and anchors as necessary were used to attach the panel to the wall so that it may support the MCCs. Sometimes a whole wall is covered in plywood for this type of purpose rather than just a panel. When mounting the MCCs ensure that the positioning is such that the coaxial cable bundle is to the right of the MCCs, and include cable slack for strain relief and maintenance. Include the use of panduit and strain relievers where necessary.

2.3.3 Installing Each MCC

Figure 2-4 Typical MCC Installation shows how 3 MCCs might be mounted on a backroom wall. The MCCs are arbitrarily numbered M1 through M3 from top to bottom. A four inch space should be allowed between the mounted MCCs for 10Base-T and power connector clearances, as well as room for adequate ventilation. MCC power and 10Base-T connections are made at the bottom of each mounted MCC.

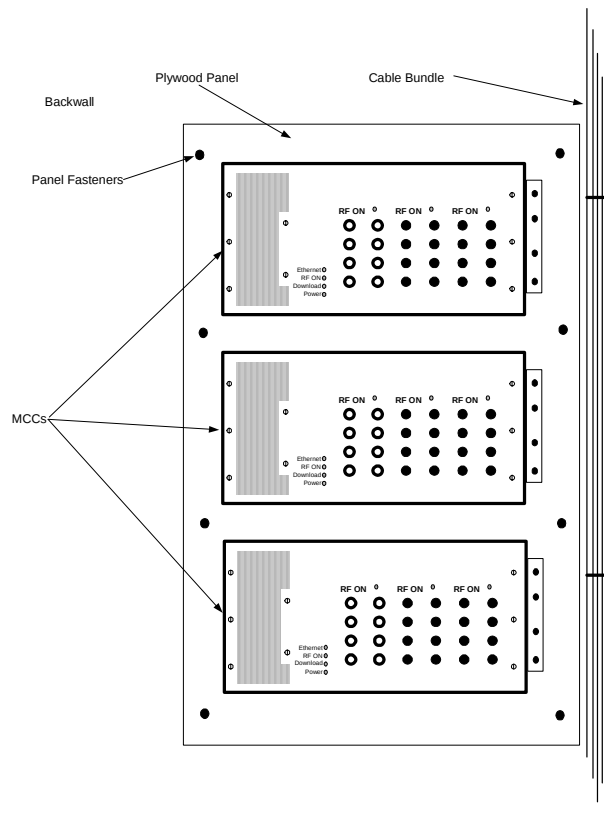


Figure 2-4 Typical MCC Installation

Perform the following steps to mount each MCC:

1. Lay out the MCC bracket mounting holes on the plywood panel. An example of a plywood panel laid out to accommodate 3 MCCs is shown in *Figure 2-4 Typical MCC Installation*.
2. After you lay out these holes, attach the MCC mounting brackets to the plywood panel using No. 10, 3/4-inch self-tapping screws. (See *Figure 2-5 MCC Mounting Bracket*).

3. Record the MAC address (located on the label next to the ERS logo) on the form "Backoffice Data for Slot Plan".
4. Line up the two slots on the back of the MCC with the two fingers on the MCC mounting bar (part of the bracket) and slide the slots over the fingers.

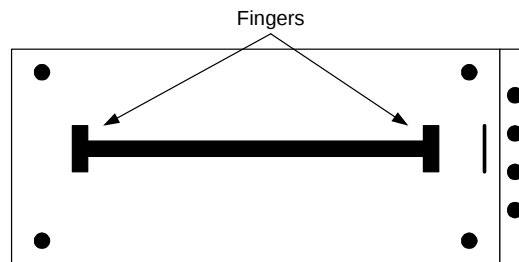


Figure 2-5 MCC Mounting Bracket

5. Engage the captive MCC retaining screw on the MCC mounting bracket to prevent an MCC from being lifted off the bracket.
6. Repeat steps 1 through 5 for each MCC you need to mount.
7. If the coaxial cables need to be connected, they can be connected now. Attach the coaxial cable to the proper port on the MCC so that the identifying numbers on the MCC will correspond to the MCC number, Cable number and Port number marked on the cable.
8. Connect the MCC power cord to each MCC and plug the other end of each cord into an AC power source. Ensure that the "Power" status indicator is lit (bottom LED on the MCC front panel). If it is not, re-check the connection.

2.4 Installing the ShelfServer Host System

This section describes the procedures necessary to install a ShelfServer host if the store does not already have a dedicated host for the ShelfServer software. Although the ShelfServer software can be installed on a store's ISP, ERS recommends that the software be run on a separate system.

2.4.1 Minimum System Requirements

Before you begin any procedures, ensure that the system you plan to install meets the following minimum requirements:

- Pentium Processor or equivalent RISC processor
- 32 MB Random Access Memory (RAM)
- 750 MB of available disk space
- Video terminal (minimum 800X600 pixels) and keyboard
- Ethernet card
- 9600-Baud modem connected to 7x24 phone line
- Disk or tape backup

Although the software only runs on supported processors, a Pentium processor with at least 32 MB RAM is required to achieve the performance requirements for value-added applications. The ShelfServer drivers, servers, and associated applications are designed to run cooperatively in a timesharing environment.

It is possible to run the ShelfNet system on the same processor performing the in-store processor function, however ERS recommends that the ShelfNet system processor be a separate machine from the ISP.

2.4.1.1 Disk Space

Free disk space is determined by the size of the store and the number of products in the database. To ensure adequate disk space for any installation, ShelfServer requires 750 MB to install the ShelfServer application and client libraries. This requirement will provide adequate disk space to support the following components:

- Product information storage
- Runtime storage for each ESL record
- Runtime storage for each controller record

- Log file storage
- Market data change storage
- Price change storage
- Error recovery storage

2.4.1.2 Peripherals

Backup System

ShelfServer requires periodic backups of runtime data to ensure non-stop operation. You can configure ShelfServer to use a variety of backup tools and tape drivers. To exercise a backup or restore request, a backup device must be available on the system or network where the ShelfServer software is running. See *2.4.2.2 System Configuration Settings* for settings.

Printers

ShelfServer produces printed output for ESL overlays and formatted reports. In order to print this output, a printer must be available on the system or network where ShelfServer is running. The printer must be capable of supporting postscript output. It must also be capable of handling overlay stock. In addition, a print engine capable of formatting the comma-delimited data must be available. ERS supplies the ELT

LabelMaster[®] print engine or the dSIGN print engine as part of the software kit for any customer that does not already have a print engine in the store.

2.4.2 ERS Supplied System Specifications

When the host system is supplied by ERS, all components will meet or exceed the minimum system requirements specified by ERS. ERS constantly reviews the latest available technology to determine the most appropriate equipment to supply with the ShelfNet system.

The ERS supplied system includes an external modem with modem cable. ERS also provides two server quality 700 VA Uninterruptable Power Supplies (UPS) with full conditioning and voltage regulation. One is for the CPU and monitor, the other for the MCCs. The Hub can be powered by either UPS.

2.4.2.1 Installed Software Configuration

The following software is installed on an ERS supplied host system:

- SCO OpenServer release 5.0.4 (or later).
- Backup Edge backup software
- perl

2.4.2.2 System Configuration Settings

The system configuration settings, to include the network configuration settings, are configured to satisfy the requirements of each customer when the system is staged prior to delivery. If changes are required, refer to the appropriate instructions furnished with the Customer Integration Files.

2.4.2.3 Serial Port Settings

The COM ports should be configured as follows:

- COM1 - Modem
- COM2 - UPS (port must be disabled)

2.4.2.4 Installation procedure

You install the host system per the manufacturers instructions which normally consists of installing a keyboard, monitor, mouse, and any of the associated peripherals.

The host system supplied by ERS is up and running SCO UNIX, and is usually pre-staged with the proper software and customer integration files already loaded and verified prior to shipment.

2.5 Installing Communications Hardware

This section describes the procedures to set up the necessary ShelfNet communications hardware. This hardware allows you to connect the required components of a ShelfNet system. These components include the In-store Processor (ISP) and/or ShelfNet host PC, MultiCell Controllers (MCCs), etc.

This section deals with ethernet hardware setup only. Establishing communications, such as setting IP addresses is discussed in the software installation documentation.

2.5.1 Equipment Requirements

Before you begin any procedures, you need to know what type of equipment and how much of it you will need to successfully install the store. For example, you will need to know how many 10Base-T ports you will need to cover the requirements of the store. Each MCC requires a port connection, the Ethernet Access Point (EAP) requires a port connection, the ShelfNet Server requires a port connection, and if a stand-alone ShelfNet Server is used, the ISP will also require a port connection to communicate with the ShelfNet Server.

All of this information should be available as a result of the site survey completed in the pre-installation process. The site survey contains most of the information you will need to ensure you have the proper equipment.

Ethernet is used as the wireless ShelfNet system communications LAN network interface. The Ethernet distribution technology employed is 10Base-T, defined by the IEEE 802.3 standard. ERS supplies 10Base-T Ethernet LAN hubs if they are not available at the store. The LAN hub is powered by a 120 VAC adapter requiring a NEMA 5-15R outlet located within 6 feet of the hub. The number of hubs required is determined by the number of MCCs that are part of the installation. For example, if only two MCCs are required in the store, one hub is usually sufficient. If you plan on joining two hubs, use the uplink port or a "crossover cable" if an uplink port is not available .

2.5.2 Installation Procedure

The actual placement of the 10Base-T hubs is determined by information based on the site survey forms. Ideally, hubs should be mounted on the same mounting surface used to mount MultiCell Controllers for ease of cabling.

The 10Base-T hub is a device with a "*one-to-many*" connection. It links the Multi-Cell Controllers (MCCs) to the ISP or stand-alone PC running ShelfServer Software. Typically, each ERS supplied hub has 8 ports and the capacity to link 7 MCCs to the Server. As stated previously, these specifications may change as ERS constantly reviews the latest available technology.

Remove the 10Base-T LAN hub from its shipping container and install according to instructions supplied with the device. The device supplied by ERS must be located within 6 feet of a standard AC power outlet. Install the hub and apply power. Ensure that the power indicator is on.

2.5.3 Physical Connections

1. Measure the cable distance between the ShelfNet Server and the Ethernet 10Base-T hub. Select the nearest standard cable length and connect the RJ45 plug into the RJ45 receptacles on the ShelfNet Server ethernet card and the 10Base-T hub.

Note:

If you plan to attach a single MCC directly to the Ethernet Adapter card in the Server without using a hub, the Ethernet LAN cable between them must be a "crossover" cable.

2. Measure the cable distance from the hub and each MCC. Select the nearest standard cable length and connect one of the RJ45 connectors into the RJ45 receptacle on the hub and the other end into the RJ45 receptacle on the MCC.

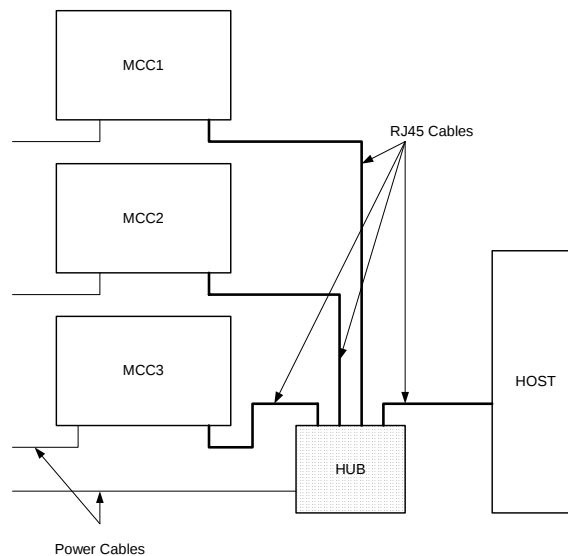


Figure 2-6 Hub Connections

3. Repeat this process to connect all MCCs to the hub.

4. Ensure that all MCCs have a connection to the hub and that the host is also connected to the same hub. Check the lights on the hub to verify the connections. If you have multiple hubs, ensure that the hubs are connected to each other with a direct RJ45 connection.

Note:

If you are connecting the hub to other networked components on a larger LAN, you must use a *"crossover"* cable from the hub to an Ethernet entry point on the other LAN.

IP addresses and other pertinent information required for ethernet communications is set up during the *"staging"* phase of the installation process. Once you make these physical connections, you can bring up the network when you bring up the ShelfServer software. At this point, all ShelfNet components are capable of communicating over the network.

2.6 Installing the Ethernet Access Point

This section describes the procedures necessary to install the Ethernet Access Point (EAP) on a new or existing ShelfNet system. This section deals with the hardware installation only. The EAP was appropriately configured during the "staging" phase of the installation process.

2.6.1 Equipment Requirements

The following is a sample of some of the items you may need to complete this task. This list may change depending upon the location or installation requirements. Check with your manager to determine the appropriate materials required for the specific installation:

- Ethernet Access Point and related parts (i.e., antenna, DC connector)
- 10Base-T Cable
- Site Survey Forms

2.6.2 Installation Procedure

The Site Survey Forms detail the exact placement of the EAP within the store, which may be in the computer room or other location within the store. The information on this form has been determined based on information obtained during the Site Survey phase.

Use this form to determine the exact location where the EAP should be placed and remove the EAP from its shipping carton. Then perform the following steps:

1. Connect the EAP antenna to the EAP.
2. Connect the DC Adapter to the EAP at the port labelled 15 - 25 V.
3. Plug one end of the 10Base-T cable into the EAP at the port labeled 10Base-T.
4. Plug the other end of this cable into the hub. The exact location of the hub that you need to plug into is indicated on the site survey forms.
5. Plug the other end of the DC adapter into an appropriate electrical outlet.

2.7 Installing Rails and Attachments

This section describes the procedures necessary to install ESL rails and fixtures. There are a variety of ESL mounting rails and fixtures available. In most cases, ESLs are attached to rails that are attached to gondolas. If products are displayed on racks or other non-gondola fixtures, their ESLs are usually mounted on individual fixtures attached to the display racks. Freezer ESLs are attached to rails in freezer bins. The site survey forms describe what methods should be used for a particular store configuration.

2.7.1 Rails

ShelfNet system rails are either top or bottom rails and are typically supplied in 3-foot and 4-foot lengths, but may be ordered in any length up to 4-foot. Three-foot rails have 3 attachment brackets; four-foot rails have 4 attachment brackets.

Top rails are usually mounted on the upper levels of a gondola and bottom rails are usually mounted on the lower levels of a gondola. The actual type and placement is dependent upon two major considerations; the pitch of the "C" channel or shelf edge (which will vary with different manufacturers), and the lighting in the store. Because of this, decisions regarding type and placement of rails and individual attachments are site specific, to ensure that the ESLs are mounted with optimal viewing angles.

An example of mounting a rail directly on a store gondola C-channel is shown in *Figure 2-7 Attaching Rails*. Although this example shows a screw that is accessed from the top, some attachments include a screw that must be accessed from the bottom.

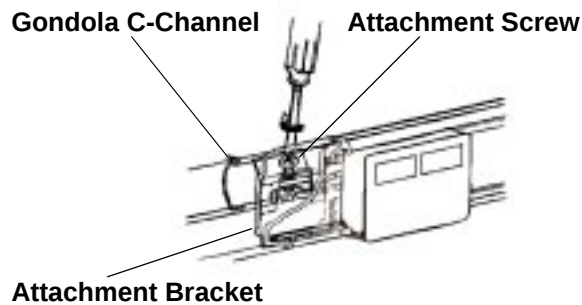


Figure 2-7 Attaching Rails

Slide the attachment bracket into the gondola C-channel and turn the screw until the ESL plastic rail is firmly wedged into the gondola C-channel (a torque of 10.5 inch-lbs).

ERS uses and recommends the Milwaukee cordless screwdriver catalog number 6546-1 on setting 3 to closely approximate the required torque, while helping to provide a quicker and more efficient installation.

2.7.2 Individual Attachments

Individual attachments are peghook and C-channel attachments used to accommodate a single ESL. The mounts are used in places where products are not displayed on standard aisle gondola shelves. Typically, such products are displayed at aisle ends on racks or in special sections set aside for displaying sale items. These mounts are installed in the same method as regular ESL rails.

Chapter 3. ShelfServer Installation

This chapter includes information pertaining to the installation and functionality of the system software, and is designed to provide you with the information necessary to successfully install your ShelfServer software. It assumes some knowledge of the UNIX operating system and also assumes you have administrator or superuser privileges.

3.1 System Requirements

The minimum software and hardware required to support ShelfServer consists of the following:

3.1.1 Software

One of the following UNIX operating systems must be installed on the Host Server:

- UNIX System V, release 5.3 (or later).
- SCO OpenServer release 5.0.4 (or later).
- AIX 3.2.5 (or later).

3.1.2 Hardware

The Host Server should meet the minimum system requirements as described in *section 2.4.1 of Chapter 2 Hardware Installation* in this guide:

3.2 Installing the Print Engine

ERS supports both the ELT LabelMaster and dSIGN print engines. However, ELT LabelMaster print engine software is the recommended software for the ShelfNet system.

If you have determined that you need to load the ELT LabelMaster software to your system, you must complete the following procedure prior to installing the ShelfServer software. If ELT LabelMaster software is not required, skip this section and go on to section 3.3, *Installing ShelfServer Software*.

If you are installing dSIGN print engine software, use the vendor installation instructions to install the dSIGN printer product, then proceed with section 3.3 when complete.

3.2.1 Loading the ELT LabelMaster Software

If the ELT LabelMaster software must be loaded on the system, the procedure must be completed prior to installing the ShelfServer software. If the ELT LabelMaster software is not required, go on to section 3.3, *Installing ShelfServer Software*.

Ensure that you have the appropriate release of the software and perform the following steps:

1. Login to the system as root.
2. Type **cd /usr** to change to the */usr* directory.
3. Type **mkdir lm521** to create a directory called lm521 under */usr*.
4. Type **cd lm521** to change to the *lm521* directory.
5. Insert the first ELT LabelMaster floppy labeled #1 into the diskette drive.
6. Type **cpio -ivdm -I /dev/devicename**. The devicename is the name of the floppy device you are using to load your diskettes.

The installation process prompts you for each disk followed by the **Enter** key. After the installation completes, the prompt returns with information on how many blocks have been loaded.

3.3 Installing ShelfServer Software

The installation script is an interactive script which requires that you answer questions or fill in specific information. Most of the questions are self-explanatory. However, if you need help with any question, refer to the information after these steps for details.

3.3.1 Procedure

Perform the following procedure to install the ShelfServer software on your system:

Note:

Steps 2-4 below presume that ShelfServer will be installed on your system under the directory */usr/local*. If you have another area on your system designated for installation, substitute it for the */usr/local* directory in those steps.

1. Login to your system as root.
2. Type **cd /usr** to change to the */usr* directory if not already there.
3. Type **mkdir local** to create a subdirectory called *local*.
4. Type **cd /usr/local** to change to the */usr/local* directory.

Note:

Steps 5 and 6 assume that you are installing from diskettes. If you are installing from a tape, use steps *5A* and *6A* instead.

5. Insert the ShelfServer floppy disk labeled #1 into the floppy disk drive.
6. Type **tar -xvf {device name}** (i.e. */dev/fd0*) and press  to extract the files. The extraction process prompts you for each diskette.
- 5A. Insert the software installation tape into the tape drive.
- 6A. From the */usr/local* directory, type **tar -xvf {device name}** (i.e. */dev/rStp0*) and press .
7. Type **zcat ss_install.tar.Z | tar -xvf -** and press .
8. Type **cd ers_files** and press .
9. Type **.install** and press . This starts the actual installation process.

The installation script loads the software and prompts for the appropriate diskettes. The scripts also prompts you for answers to specific questions or directives. These questions are as follows.

Are you satisfied with the backup of your system? <y,n>

Enter "y" (yes) if your system has been backed up, or "n" (no) if you do not want to continue with the install.

Enter the directory where ERS ShelfServer should be installed <cr> for the default.: <CR>

The default is the `/usr/local` directory.

Would you like to create an /ers soft link to /usr/local? <y,n>

The customer should be asked, and unless they expressly stipulate not to do it, a `/ers` soft link should be created. A "y" (yes) response creates the `/ers` soft link.

Do you wish to install the software developer's kit? <y,n>

The normal entry should be "n" (no).

Would you like this installation to automatically add these port definitions for you? <y,n>

The normal entry should be "y" (yes).

More informational screens will appear reminding you of further action required for a successful installation. These actions will also be required when loading the Integration Files, therefore you now only need to scroll through these informational screens without taking any further action. After all of the remaining informational screens have been presented, you will be prompted that the software installation is complete.

3.3.2 Editing the `ssrun` File

Once the installation script finishes, you are prompted to perform some additional steps. The following steps describe how to complete the tasks required to achieve a successful installation. The **bolded text** indicates the data that must be inputted.

The following steps assume that you are familiar with using the `vi` editor.

1. Type **`cd /ers/shserver/bin`** to get to the `/usr/local/ers/shserver/bin` directory.
2. Type **`vi ssrun`**. The `ssrun` file appears.
3. Define `ERS_ROOT` by typing **`ERS_ROOT=/usr/local/ers/shserver`** and then make sure this line is uncommented by removing the `#` before `ERS_ROOT=`.
4. Uncomment the line that reads `export ERS_ROOT` by removing the `#` character that appears before the line.

5. Define ERS_PRINT_ENGINE_DIR by typing
ERS_PRINT_ENGINE_DIR=/usr/lm521. Make sure this line is uncommented by removing the # before ERS_PRINT_ENGINE_DIR.
6. Uncomment the line that reads
export ERS_PRINT_ENGINE_DIR by removing the # character that appears before the line.
7. Define ERS_PRINT_DATA_DIR by typing
ERS_PRINT_DATA_DIR=/usr/lm521/data. Make sure this line is uncommented by removing the # before ERS_PRINT_DATA_DIR.
8. Uncomment the line that reads export
ERS_PRINT_DATA_DIR by removing the # character that appears before the line.
9. Scroll to find the three lines that begin with **#ERS_ROOT/bin/ssdrv.....**, then uncomment the appropriate line for the type system you have by removing the # character that appears before the line.
10. When the host server is a stand alone system and not an ISP, you must uncomment the line that controls the MCCUT application. To do this, find the line that starts with **\$ERS_ROOT/bin/mccut....** and uncomment that line. Next, move to the line immediately above and insert the command **cd \$ERS_ROOT/bin** and then save these changes and exit SSRUN. This will guarantee that you are in the proper directory prior to starting the MCCUT application.

3.3.2.1 Editing the mccut.ini File

Change your working directory to *\$ERS_ROOT/env*.

You need to add MAC addresses to the mccut.ini file at this time. MAC addresses are located on a sticker affixed to the lower right-hand corner of the MCC front panel next to the ERS logo.

You also need to get IP addresses for each MCC. You can obtain these addresses from your system administrator.

In addition, you need to assign the alias/nickname for each MCC, such as MCC1, MCC2, etc.

Using the vi editor open mccut.ini, and following the example in the file, enter the MAC Address, IP Address and nickname for each MCC.

3.4 Before You Start ShelfServer

When your user shell prompt is echoed to your display, the ShelfServer installation is finished. Before you try to start ShelfServer, you should check that all changed files have correct data and that your ShelfServer file directory can be accessed. This section contains instructions for verifying your installation procedure. You perform the following checks:

1. Directory Symbolic Link Check
2. Services File Check
3. ERS_ROOT Variable Check
4. ERS_PRINT_ENGINE_DIR Variable Check
5. ERS_PRINT_DATA_DIR Variable Check
6. Hosts File Check
7. Boot Autostart Check
8. ShelfServer Start-up Check

3.4.1 Directory Symbolic Link Check

The ShelfServer install script should have created a symbolic link in your UNIX system root directory (*/*) so that when you type:

cd /ers

from the UNIX file system root directory, **/usr/local/ers** becomes your working directory.

When the absolute pathname of the directory into which you install ShelfServer has more than 17 characters, the installation shell script makes an exception by notifying you that the directory you specified has more than 17 characters.

1. Check for the symbolic link by typing:

ls -l /ers

2. Your UNIX shell should echo a line similar to the line that follows. The right pointing arrow indicates that directory */ers* points to directory */usr/local/ers*.

```
lrwxrwxrwx 1 root  other   23 Mar 5 14:38 /ers->/usr/local/ers
```

3. The symbolic link should have been created earlier, when you were asked if you wanted to create a *soft link* and you answered Yes. If you now find that the symbolic link has not

been created, you as a privileged user may create the symbolic link yourself by entering the following command:

ln -s *pathname* /ers

where *pathname* (ie. /usr/local/ers) is the absolute pathname of the directory you have specified for ShelfServer files. If you are not a privileged user, ask your System Administrator to enter this command. If this step is necessary and you take action to create the symbolic link, repeat steps 1 and 2 above upon completion to verify that the link has been created.

3.4.2 Services File Check (Requires Privileged User)

The install process or a privileged user (on behalf of an ordinary user) can modify the */etc/services* file to provide a port number and transfer protocol reference for the ShelfServer server, driver, print control process. This process or privileged user also saves the unchanged services file as */etc/services.save*. Perform the following procedure to verify that a new */etc/services* file contains the correct entries.

1. At the # prompt, type the following command:

grep 500 /etc/services

2. Your terminal should typically echo whatever information was added to the */etc/services* file by the *install* shell script or a privileged user, in a format similar to the following:

```
> #
> # ShelfServer specific services
> #
> ersserver      5000/tcp
> ersdriver      5001/tcp
> erspcm         5002/tcp
> erswl          5003/udp
> ersmcc         5004/udp
#
```

3. Check that the */etc/services* file contains one line for the ShelfServer server, driver, and print control process, and an additional two lines (**erswl** and **ersmcc**) for the wireless ShelfNet system. If your system is a wired system the last two lines would not be needed.
4. When the file does not exist, UNIX responds with an error message. Refer to the *grep* manual page for a description of *grep* command.

5. When one of the port numbers 5000 through 5004 is already in use, output of the *grep* command has the following format showing that the installation could not add the port numbers and left the port numbers commented out.

```
> #
> # ShelfServer specific services
> #
> #ersserver      5000/tcp
> #ersdriver      5001/tcp
> #erspcm         5002/tcp
```

6. When the lines normally added by the install process are commented, you must establish required port numbers and change the */etc/services* file yourself or have a privileged user do it for you.

Note:

Normally you tell the ShelfServer *install* process to do this during installation if you have the appropriate privileges. This check ensures that the ShelfServer installation process has actually assigned port numbers to ShelfServer servers and drivers and that the old */etc/services* file has been saved.

3.4.3 ERS_ROOT Variable Check

Check that the *ERS_ROOT* variable is set for the directory in which you have installed ShelfServer.

1. To check the value of the *ERS_ROOT* environment variable, type the following command:

```
$ echo $ERS_ROOT
```

```
/ers/shserver
$
```

Please note that the only other acceptable responses would be */usr/local/ers/shserver* or the alternate *pathname* you assigned as your ShelfServer working directory:

```
$ /pathname/ers/shserver
$
```

where variable *pathname* is the directory into which you have installed ShelfServer. When an *ERS_ROOT* variable does not reference your

ShelfServer working directory, you must set the value of *ERS_ROOT* from your terminal command line each time you start ShelfServer. When you try to invoke *ssrun* without a value for *ERS_ROOT*, *ssrun* echoes the following message and then exits:

ERS_ROOT must be defined before starting ShelfServer.

2. Shell script *ssrun* is set up so that you can define *ERS_ROOT* by editing and uncommenting the following lines in the *ssrun* shell script:

```
#ERS_ROOT=
#export ERS_ROOT
```

3. Using the vi editor, modify these lines by adding the absolute pathname of your ShelfServer working directory to *#ERS_ROOT=* (no spaces) and uncommenting them. For example:

```
ERS_ROOT=/usr/local/ers/shserver
export ERS_ROOT
```

3.4.4 ERS_PRINT_ENGINE_DIR Variable Check

If you have not installed ShelfServer print engine support, go to the section entitled "*Hosts File Check (Requires Privileged User)*". Otherwise, check that the *ERS_PRINT_ENGINE_DIR* variable is set for the directory in which you have installed print engine files.

1. To check the value of the *ERS_PRINT_ENGINE_DIR* environment variable, type the following command:

```
$ echo $ERS_PRINT_ENGINE_DIR
/usr/pedir
$
```

where *pedir* is your print-engine directory.

2. When you have installed ShelfServer support for your print engine software, and the *ERS_PRINT_ENGINE_DIR* variable does not reference your print engine working directory, see step 3 to set it. When you try to invoke *ssrun* without a value for *ERS_PRINT_ENGINE_DIR*, *ssrun* echoes the following message, but does not exit:

WARNING: *ERS_PRINT_ENGINE_DIR* must be defined if you wish to print reports or overlays.

3. Shell script *ssrun* in */ers/shserver/bin* is set up so that you can define *ERS_PRINT_ENGINE_DIR* by editing and uncommenting the following lines in the *ssrun* shell script:

```
#ERS_PRINT_ENGINE_DIR=  
#export ERS_PRINT_ENGINE_DIR
```

4. Using the vi editor, modify these lines by adding the absolute pathname of your ShelfServer print engine working directory to *#ERS_PRINT_ENGINE_DIR=* and uncommenting them. For example:

```
ERS_PRINT_ENGINE_DIR=/usr/pedir  
export ERS_PRINT_ENGINE_DIR
```

where */usr/pedir* is your print-engine directory absolute pathname.

3.4.5 ERS_PRINT_DATA_DIR Variable Check

If you have not installed ShelfServer print-engine support, skip this step. Otherwise, check that the *ERS_PRINT_DATA_DIR* symbolic constant points to the */usr/pedir/data* environment variable.

1. To check whether the *ERS_PRINT_DATA_DIR* symbolic constant is set to */usr/pedir/data*, type the following command:

```
$ echo $ERS_PRINT_DATA_DIR  
/usr/pedir/data
```

where */usr/pedir* is your print-engine directory.

2. When you have installed ShelfServer support for your print-engine software, and the *ERS_PRINT_DATA_DIR* symbolic constant is not set equal to your *\$ERS_PRINT_ENGINE_DIR/data* directory as shown in step 3, you must modify the *ers.ini* file. Otherwise ShelfServer cannot print reports and overlays.
3. Using the vi editor, change directory to *\$ERS_ROOT/env* and edit the *ers.ini* file to ensure the following setting is correct:

```
ERS_PCM_PRINT_DIR=ERS_PRINT_DATA_DIR      # PCM output directory
```

3.4.6 Hosts File Check (Requires Privileged User)

Check that your */etc/hosts* file contains a line that specifies your host machine name and that its IP address is properly specified. This line should have a format similar to:

```
ipaddr      hostname      alias
```

Variable *ipaddr* is your host IP address, *hostname* is your machine host name, and *alias* is an alternate name for your host machine. An alias value is not required, but may be specified.

1. To check for your host machine name type the following command:

```
grep hostname /etc/hosts (or equivalent)
```

2. Replace the term **hostname** with the name of your server, ie. *erspc*
3. When your */etc/hosts* file does not contain a reference to your host IP address and host machine, you must enter the correct data into the */etc/hosts* file, but must be a privileged user to do this. Check with your System Administrator.
4. Make sure that the IP and MCC addresses are a part of the host file prior to starting ShelfServer.

3.4.7 ShelfServer Start-up Check

For ShelfNet systems, shell script *ssrun* must properly start the correct drivers and possibly reference a communications port. Check that the proper ShelfServer communications port is specified in the shell script *\$ERS_ROOT/bin/ssrun* as follows:

1. To check the *ssrun* shell script, type the following command:

```
$ grep driver1 $ERS_ROOT/bin/ssrun
```

When the *ssrun* file has not been configured for the comm port, the following lines should be echoed to your display:

```
#$ERS_ROOT/bin/ssdrv driver1=ers_passive_radio...>/dev/null &
#$ERS_ROOT/bin/ssdrv driver1=ers_wired device1=/dev/??...>/dev/null &
#$ERS_ROOT/bin/ssdrv driver1=ers_wired device1=/dev/??
driver2=ers_passive_radio...> /dev/null &
```

Line one is for a wireless ShelfNet system.

Line two is for a wired ShelfNet system.

Line three is for a hybrid ShelfNet system.

Verify that the appropriate line has been uncommented for your particular configuration.

2. If necessary, go to the ShelfServer *ssrun* file at *\$ERS_ROOT/bin*. Using the vi editor, uncomment the correct lines and for a wired or hybrid system, change the value of *device1=* from */dev/??* to */dev/<com port>*. Check with your UNIX System Administrator if you do not know how to do this.

3.5 Integrating Customer Files

If your ShelfServer package came with one or more integration diskettes, please use the instructions that came with the integration package.

3.6 Upgrading ShelfServer Software

Upgrading ShelfServer software will require the same procedure as discussed up to now in this chapter, with the added requirement of performing a backup beforehand to ensure against loss if a problem should occur during the upgrade. If an upgrade is required, follow the instructions that accompany the upgrade package.

3.6.1 Backing up the ShelfServer Software

Before performing any upgrade, you should backup your existing ShelfServer system. Perform the following steps.

1. Login to your system as root.
2. Type **sskill** to shutdown the existing version of ShelfServer.
3. Type **cd /usr/local/ers/shserver/db** and press  to get to the */usr/local/ers/shserver/db* directory.
4. Type **dbcheck -a raimadb** and press  to perform a database check. This may take several minutes to complete, depending upon the size of the database.
5. Type **cd /usr/local/ers/shserver** and press  to get to the */usr/local/ers/shserver* directory.
6. Type **tar -cvf shserbckup.tar *** and press  to back up the ShelfServer directory. This may take several minutes, depending upon the size of the database.

7. Type **compress shserbckup.tar** and press  to compress the backup.

Your files should now be properly backed up and you are ready to begin the software installation process.

3.7 Activating the Slot Plan

This section describes how to activate the slot plan and prepare files and materials required to perform in-aisle preparation and initialization. The following list details the flow of the slot plan activation procedures.

- Define slot and frame counts
- Modify MCC slot-to-port assignments
- Save the store.map file
- Download store.map to each MCC

3.7.1 Loading and Modifying MCC Information

Prior to booting ShelfServer, information concerning installed MCCs was set up in the *mccut.ini* file.

Perform the following steps to download MCC information:

1. Select **Installation** from the Network Maintenance & Diagnostics screen. You will get an error message stating the *store.map* file cannot be found or does not exist.
2. Choose OK. The Installation screen appears.

Installation

Name: [] # MCCs: [] Slots: [] Frames: []

MCC Name	Address	Slot	Port	Loc Code
			[] []	
			[] []	
			[] []	
			[] []	
			[] []	
			[] []	
			[] []	

[F2 = Save]
[F3 = New]

[F4 = Add MCC]
[F5 = Delete MCC]

[F6 = Download]
[F7 = Upload]

[F8 = Print]

User: ers Status: Ready SS Host: techpubs

Screen 3-1. Installation Screen

3. Press **F3** to build a new store.map. A window appears for entering the following information:
- File Name (always **store**)
 - Number of MCCs (obtained from plan)
 - Number of Slots (obtained from plan)
 - Number of Frames (always **2**)

4. Press **F2** to save the entered information and close the window. The Installation screen will now be filled-in across the top with the information just entered, and the **MCC Name** and **Address** columns will show each MCC by name (MCC1, MCC2, etc) with the first six digits of the MAC address.
5. Use the Tab Key to move down to the **MCC Name** field, then use the Up or Down arrow key to move to the **MCC Address** field and fill in the last six digits for each MAC address.
6. Use the Tab Key to move to the right and fill in the columns for each MCC with the information obtained from the Slot Plan. See *3.7.1.2 Associating Ports and Slots*.
7. When all entries are completed, press **F2** to save the information.
8. The left column on the screen lists each installed MCC with its MAC address. Repeat steps 5 through 7 for remaining MCCs.
9. Press **F6** to download the information to the MCCs
10. Choosing **F6** Download will cause a window to appear asking if you want to turn RF on. Press **ENTER** to accept. This downloads the slot plan to each MCC, tells each MCC to start using the slot plan and sets the clock sync protocol (CSP) to **ON**.

3.7.1.1 Changing MCC Names

You can change the names of the MCCs to suit the needs of your installation. ERS recommends that you name MCCs as they are named on the Cell Plan. For example MCC1, MCC2, and so on. However, if you decide to change the MCC names, make sure you also change the names on your finalized Cell Plan to ensure that MCC locations and names correspond when performing maintenance functions after installation.

To change an MCC name, perform the following steps:

1. The MCC must be *Non-Responding*.
2. At the **Controller Commands and Parameters** screen (5-4-2 screen), highlight the subject MCC and press **TAB** to get to the **Name** field.

3. In the **Name** field, enter the new name in uppercase characters, then press **F2** to save the new entry.
4. When you change an MCC name, you should also edit the **mccut.ini** file to reflect the new name. (See 3.3.2.1 *Editing the mccut.ini File*).
5. When you change an MCC name, you must also edit the **/etc/hosts** file to reflect the new name.
6. When you change an MCC name, you must also edit the **store.map** to reflect the new name. (See 3.7.2 *Associating Ports and Slots* and 3.7.3 *Downloading MCC Information*)

3.7.1.2 Associating Port and Slots

You must activate the slot plan by associating slots and ports for each MCC. This function is also performed on the Installation screen.

The Cell Plan contains the information you need to make these associations. The Cell Plan indicates the MCC, Port, and Slot in the following format:

MCC name - Port - Slot

For example:

M1-1-1



Figure 3-1. Cell Plan

The first part, M1, indicates the MCC name. The second number after the dash indicates the port, and the third number indicates the timing slot. The port number is the number you need to add to each MCC slot assignment.

The Installation screen lists each MCC name and MCC address on the left hand side, and each slot associated with the selected MCC appearing on the right. The port fields are empty at this point. You need to fill in the port assignment for each slot.

Perform the following steps to associate slots and ports for each MCC:

1. Select the first MCC on the installation screen by highlighting it.

- 2. Using the Cell Plan, locate the MCC that you have selected.
- 3. Beginning with Slot 0, enter the appropriate port number into the port field adjacent to the selected slot.

Installation

Name: [] # MCCs: [1] Slots: [8] Frames: [2]

MCC Name	Address	Slot	Port	Loc Code
[MCC1]	[00A0E900013]	0	[] []	
		1	[] []	
		2	[] []	
		3	[] []	
		4	[] []	
		5	[] []	
		6	[] []	
		7	[] []	

[F2 = Save]
[F3 = New]

[F4 = Add MCC]
[F5 = Delete MCC]

[F6 = Download]
[F7 = Upload]

[F8 = Print]

User: ers Status: Ready SS Host: techpubs

Screen 3-2. Installation Screen with Entries

- 4. Information placed in the **Location Code** column for each slot should be either the antenna number or other assigned location code in use.
- 5. Repeat steps 1 through 3 for each MCC.
- 6. Press  to Save the entered information.

Chapter 4. System Verification

The ShelfNet system must be checked for proper operation upon completion of the initial system installation. To accomplish this, certain predefined checks and tests may be performed, but not necessarily in conjunction with each other.

4.1 Pre-ESL Quality Check

The Install Manager is responsible to ensure the completion of the Pre-ESL Quality Check. This check is done after completion of the installation process, but before the installation and commissioning of the ESLs. For purposes of this check, one properly functioning ESL is usually installed under each installed ACA to verify communication.

4.1.1 Procedure

An ERS Pre-ESL Quality Checklist Form is available for each ShelfServer Host installation, either stand-alone PC or ISP. Besides a place for the Store Name with Number and Date, the form consists of a series of questions to guide those performing the check through the process, with a designation as to who is responsible for each response. Labeled columns are available to checkmark the appropriate Yes or No response, as well as for providing an explanation if necessary. Upon completion, a signature of the ERS Installer is required.

The questions on the Pre-ESL Quality Checklist are grouped into categories as follows:

- PC & Computer Room
- ShelfServer
- MCCs and Cabling
- ACAs
- Hand Held Terminals
- ESLs

A sample of the questions asked, with the corresponding question number from the actual form follows as an example. When performing the actual check, use the most recent appropriate form available from the ERS Installation Manager.

PC & Computer Room

- 1. Is the PC powered by the UPS?
- 5. Has report printing been tested OK?
- 10. Is the site log located in the computer room?
- 13. Are the correct MAC address in the Store.Map file?
- 18. Does the store have Screw drivers for rail replacement? (Min 2)

ShelfServer

- 19. Record the SS software rev # - is it the current approved rev #?
(record in "Explain" column)
- 22. Has "flooding" been correctly set per approved installation set up procedure?
- 24. Is DB Check and Backup operating to specifications?

MCCs and Cabling

- 26. Are the MCCs powered by the UPS?
- 27. Are the MCCs mounted securely?
- 30. Are LEDs visible?
- 33. Are the MCCs Labeled (1,2,3,etc.)?
- 35. Has each ACA cable been tested using coaxial cable tester?

ACAs

- 36. Are all ACAs mounted securely and evenly?
- 41. Are ACAs located 12' to 15' from the floor to ceiling?
- 43. Are any large objects blocking line of sight to ESLs? Explain: metal, wood, etc
- 45. Have potential problem areas been thoroughly tested (closed door freezers, etc.)?

Hand Held Terminals

- 46. Verify that all HHTs are operating to specifications.
- 47. Use all HHTs to test RF communications - add an ESL under each ACA.

ESLs

48. Have Location Stickers been printed and posted in the aisles for ESL installers?

49. Have ACA number signs been completed for ESL installers (to use assigning slots in aisles)?

4.1.2 Checking Host File

This procedure is to ensure that the installed IP addresses are correctly represented in the system.

From the UNIX prompt:

1. Type in "cd /etc" and hit  .
2. Type in "cat hosts" and hit  .
3. Verify that IP addresses match customer information sheet.
4. Verify that the Alias name matches the customer information sheet.

4.1.3 PCDI and MDI File Verification

This procedure is to verify if initial PCDI and MDI files exist.

From the UNIX prompt:

1. Type in "cd \$ERS_ROOT/pcdi" and hit  .
 - You should see files such as "PCD####.dat" (#### being a number), depending upon the parameters established in the pcdi.fdl file.. If ShelfServer has completed running the file may end with .sav instead of .dat
2. Type in "cd \$ERS_ROOT/mdi" and hit  .
 - You should see files such as "MDI####.dat" (#### will be a number), depending upon the parameters established in the mdi.fdl file. If ShelfServer has completed running the file may end with .sav instead of .dat

4.1.4 MCC Bin Version Check

This procedure is used as necessary to check that the latest version of the MCC.bin loaded.

From the SSUI:

1. Select screens 5-4-2, then press F8.
 - MCC.bin version number is displayed in the software field under the MCC Version group. Verify that this is the latest released version.

OR

From the UNIX prompt:

1. Type in "cd \$ERS_ROOT/bin" and hit enter.
2. Type in "strings mcc.bin | grep MCC.OC" and hit enter.
 - The version number will be displayed. Verify that this is the latest released version.

Chapter 5. Commissioning ESLs

This chapter provides information on how to commission ESLs using the portable terminal application. Before you commission any ESLs, make sure that all procedures in Chapters 2 and 3 are complete. The following diagram shows the process for ESL commissioning:

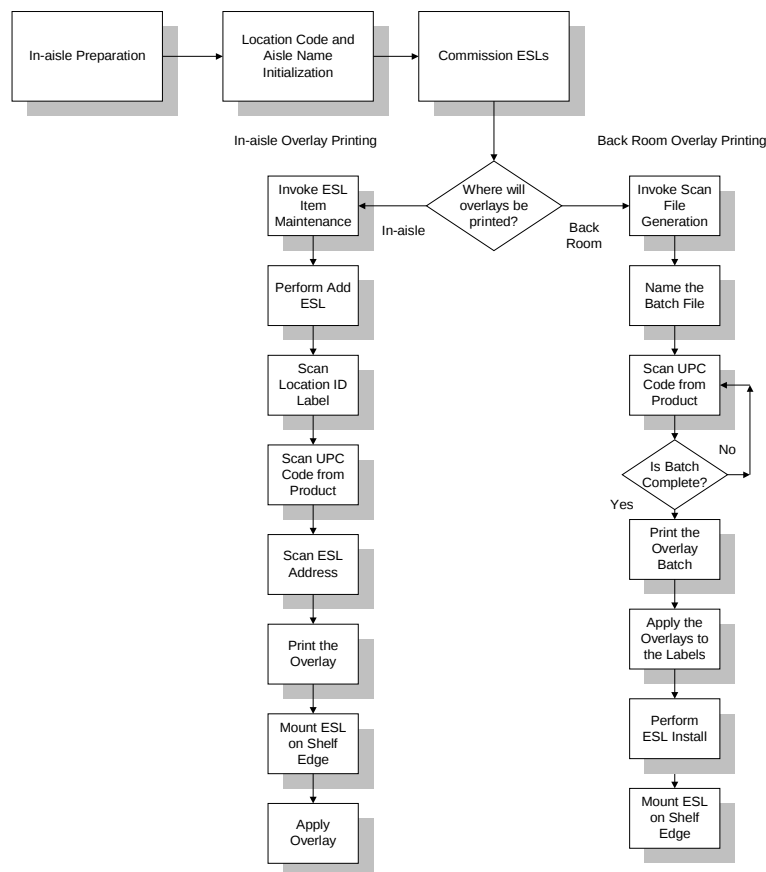


Figure 5-1. ESL Commissioning Process Flowchart

When you commission, you associate an aisle location code, an ESL size, a UPC, and the ESL's internal hardware address with the ESL in the ShelfServer data base.

ERS provides two commissioning procedures using the Handheld Terminal (HHT). These procedures only differ in the method by which the overlays are printed and applied to the ESLs, but are otherwise similar. In the first procedure you print and apply the overlay in-aisle, for each ESL that you commission. This is the **In-aisle Overlay Print** method. In the second procedure, you print out a batch of overlays on the back room system printer, apply them en masse to ESLs, and return to the aisle to complete the process. This is the **Back Room Overlay Print** method. Each of these methods will be presented, step by step, in this chapter.

This chapter deals only with mass deployment of ESLs during the initial installation of a store, and assumes that the handheld terminal is already configured to talk to ShelfServer. For information on adding individual ESLs, performing ESL maintenance, or running PowerApps using the handheld terminal, refer to the *ShelfNet System User's Guide*.

Note:

You can only run as many simultaneous hand held sessions as you have available UNIX licenses (logins).

5.1 Employing the Handheld Terminal

You access the ShelfNet handheld application by logging into the host operating system and invoking the handheld application. This host is the host where ShelfServer is running. Unlike the ShelfServer interface, no ShelfServer user privilege is required to gain access to the screens.

Perform the following steps to access the handheld application and login to the ShelfServer application:

1. To access and start the handheld application, press the on/off button on the handheld terminal.
2. If the A:> prompt appears, type **ptctcp** and press the **Enter** key. The Main Menu appears. The A:> prompt may not appear depending on the status of the terminal. For example, if the terminal has only been shut down a short time, the Main Menu may appear as soon as you press the on/off button.
3. To log on, press **5** (Emulation) on the HHT Main Menu.
4. When log-on prompt appears, log on using **hand** if without portable printer attached, or **belt** if printer is attached.

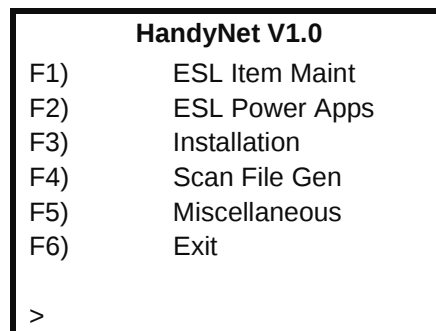
If configured by your administrator, you should not have to enter an operating system username and password to gain access to the system. The HHT will connect to the host through the EAP.

Once you logon, the Hand Held Main Menu appears. The Main Menu lists the four selections available to you. They are:

- ESL Item Maintenance
- ESL Power Apps
- Installation
- Scan File Gen

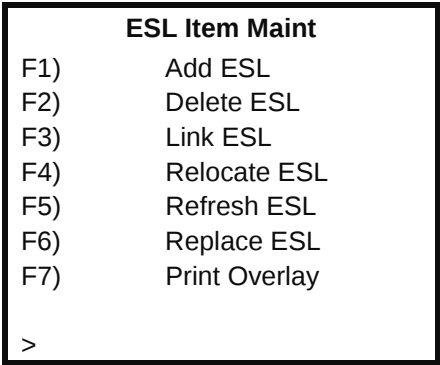
5.2 ESL Maintenance Screens

You begin by invoking the ESL Item Maintenance screen on the handheld terminal. To do this, logon to the ShelfNet System with this terminal. The Main Menu screen appears.



Screen 5-1. Main Menu

Next press FUNC and the **1** key (ESL Item Maint). The ESL Item Maint screen appears.



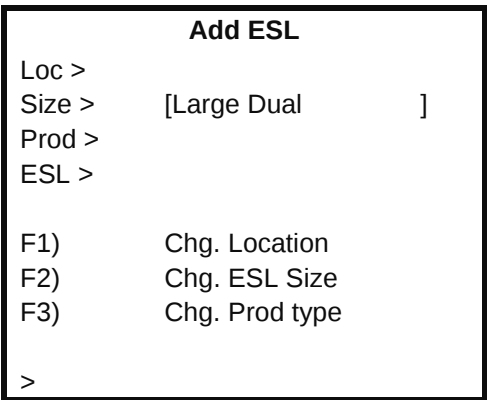
Screen 5-2. ESL Item Maint

5.3 Adding an ESL

For this task we will be describing the scanning of location ID stickers. It is important to point out that this is only one type of identifying location assignments. Some stores may not place the location code on the shelf, but scan from a bar code on a sheet. Other stores may not assign a unique location code, but manually enter the ID of the nearest ACA. The overall intent here is to describe the typical process in performing this task.

Perform the following steps to add an ESL to the system:

1. Press FUNC and the **1** key (Add ESL) on the ESL Item Maint screen. The Add ESL screen appears:



Screen 5-3. Add ESL

2. Scan the location ID sticker of the section you are standing in. A location ID appears in the Loc field. You only need to scan this sticker once as long as you are adding ESLs to the same location. If location labels are not used, you must enter this information manually. To do this, press FUNC and the  key (Chg. Location) from the Add ESL screen to get to the Loc field. Type in the appropriate location code, such as L2.

The cursor skips the Size field. The default size is Large Dual. If you need to change the size, see *section 5.4 Changing an ESL Size* in this chapter.

3. If you are using order numbers instead of UPC codes for your products, you need to change the default (UPC) to Order Number before performing this step. (see section 5.5).

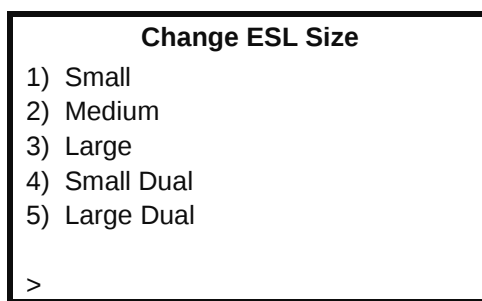
Otherwise, scan the UPC code on the product. The UPC code appears in the Prod field.

4. Scan the ESL address on the ESL. The ESL address is located on the right end of the ESL. This address appears in the ESL field.
5. Once you scan the ESL address, an overlay automatically prints for that ESL. Place the ESL on the shelf and apply its printed overlay. Repeat the process for each product.

Remember to re-scan the location ID sticker when you come to a new location. New locations are marked by the presence of a different location sticker.

5.4 Changing an ESL Size

To change the size of an ESL from the default (Large Dual), press FUNC and the **[2]** key (Chg. ESL Size) on the Add ESL screen. The Change ESL Size selection subscreen provides a listing of supported ESL sizes that you can select to fill the Size field on the Add ESL screen.



Change ESL Size

- 1) Small
- 2) Medium
- 3) Large
- 4) Small Dual
- 5) Large Dual

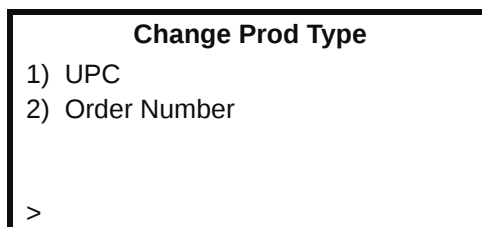
>

Screen 5-4. Change ESL Size

Press the number that corresponds to the size of the ESL. The selected size is added to the Size field on the Add ESL screen.

5.5 Changing a Product Type

The Change Prod Type screen lets you select an interpretation of product keys scanned. You can choose either UPC or Order Number scan methods.



Change Prod Type

- 1) UPC
- 2) Order Number

>

Screen 5-5. Change Prod Type

Press the number that corresponds to the appropriate Product Type interpretation of the ESL. The selected Product Type selection is added to the Prod field on the Add ESL screen.

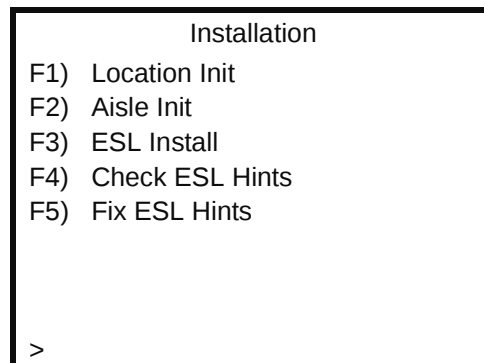
5.6 Assigning Location Codes to MCC/Slot Pairs

Initializing location codes consists of associating MCCs and timing slots to locations in each aisle. You perform this function by scanning MCC/Slot barcode pairs and then scanning the appropriate location ID overlays.

Since the appropriate MCC/Slot barcode stickers should have been placed in the appropriate locations, making the MCC/Slot/Location association is completed by simply scanning the three stickers on each location.

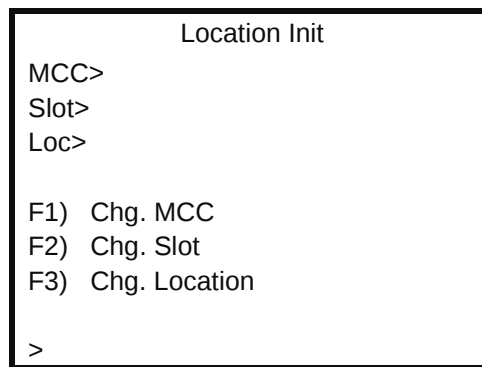
Perform the following steps to use the Hand Held Terminal to assign location codes to MCC/Slot pairs.

1. From the Main Menu on the HHT, press **FUNC** and the **3** key (Installation). The *Installation* screen appears.



Screen 5-6. *Installation*

2. Press **FUNC** and the **1** key (Location Init) from the Installation screen. The *Location Init* screen appears.



Screen 5-7. Location Init

3. Scan the appropriate MCC and slot barcodes.
4. Scan the Location ID sticker.
5. Repeat this for every location within that aisle.

Once you complete this process in every aisle, back out to the Main Menu using the **ESC** (Escape) key.

5.6.1 Aisle Initialization (If using PowerApps)

If you intend to use PowerApps, you should make a second pass down each aisle to associate aisles and locations. This gives you the ability to run a power app within a particular location or aisle. Refer to the *ShelfNet System User's Guide* for information on running PowerApps.

Perform the following steps to initialize an aisle:

1. Press **FUNC** and the **2** key (Aisle Init) from the Hand Held Main Menu.
2. Type in the aisle name using the Hand Held keypad. For example, you may call your aisle something as simple as Aisle 1. You may also separate the sides of each aisle with a letter designation such as A or B. Using this method, you would type in 1A or 1B in the aisle field.
3. Scan each Location ID sticker in that aisle.

4. Repeat the process for the other side of that aisle and again for each aisle in the store.
5. When you complete scanning for all aisles, press **FUNC** and the **[3]** key (Reload).

At this point your locations and aisles are initialized and you are almost ready to begin adding ESLs to the system. You should first check to ensure that location IDs have in fact been added. The next section describes this process.

5.7 Verifying Location ID Coverage

You can verify location ID initialization by viewing the Installation screen on the UNIX terminal connected to the host running ShelfServer. While looking at the Installation screen, select an MCC by highlighting it. The location field in the right column should now indicate that locations have been assigned by a particular slot.

For example, if you scanned 6 locations for MCC1/Slot 1, you should see all 6 locations in the location field.

5.8 Scan File Generation

Scan File generation is the process of building a batch file of product UPCs from which ESL overlays can be printed in preparation for the commissioning of ESLs. This procedure is normally only done prior to the initial installation of ESLs during a store installation process.

5.8.1 Procedure

1. Log-on to the handheld terminal as either **hand** or **belt**. This brings you to the **HandyNet Menu**.
2. Press **FUNC** and then **[4]**. This brings you to the **Scan File Gen** screen.
3. Type in a file name of your choice. For example, if you are scanning in cereals, name the file **cereals**, and press **Enter**.
4. Press **FUNC** and then **[2]**. The **Change ESL Size** screen appears.
5. Press the number that corresponds to the size of the ESL you are adding. Verify that this is correct. (You will most likely be

- using **Small Dual** or **Large Dual** ESLs.) This brings you back to the **Scan File Gen** screen and the **Size>** field displays your selection.
6. Scan the UPC Barcode on the product. (Repeat this for as many products as you are scanning of this size.) The UPC# appears in the **Prod>** field.
 7. To save the file, press **Func** and then **4**. (**OK** appears in the bottom left-hand corner of the screen, confirming the file has been saved.) It is recommended that you do this often during the generation process. If you should experience a problem with the handheld terminal during this process, all items scanned since the last save will be lost.
 8. You may mix ESL sizes in the same file. Be sure that you have selected the proper ESL size for the product you are scanning.
 9. For a new batch, press **Func** and then **3** (**New Scan File**).
 10. Enter new file name.
 11. Scan new UPC's.
 12. Press **Func** and then **4** to save this file.
 13. At the ShelfServer system monitor displaying the **Shelf-Server Main Menu** select **2) ESL Maintenance**, then select **1) ESL Batch Maintenance**.
 14. First filename will have the original quantity of products scanned.
 15. Second file, if created, should have only the second quantity of products scanned.
 16. See 5.8.2 *Print Overlays from Scan Files*.

5.8.2 Print Overlays from Scan File

1. Starting from the ShelfServer Main Menu, select **2) ESL Maintenance** and press **ENTER**. This brings you to the **ESL Maintenance Menu** screen. Select **1) ESL Batch Maintenance** and press **ENTER**.
 2. Using the arrow keys, select the batch file you created and press **ENTER**.
 3. Press option **F6** to queue the overlays for printing.
-

4. The **Queue Programming Report** window opens, press  for **OK**.
5. Press  until you return to the **ShelfServer Main Menu**.
6. Select **4) Reports and Overlays** and press . This brings you to the **Reports Menu** screen.
7. Press option . This brings you to the **Print Queue** screen.
8. Using the arrow keys, highlight the file you created (e.g. **ce-real**).
9. Insert the appropriate overlay stock into the printer.
10. Press  to print the overlays. The **Print** window appears confirming the batch has been sent to the printer. Press  for **OK**.
11. Apply overlays to ESLs. They must now be activated in the aisle.

5.8.3 To Exit

When you press **ESC** from the **HandyNet Menu** you will return to the Unix prompt. At this point type **Exit** and press . This will terminate the session.

Note:

If logged-on via **hand** or **belt**, pressing **ESC** from the HandyNet Menu will immediately terminate the session.

Chapter 6. Troubleshooting

This chapter addresses the troubleshooting of blank wireless ESLs. A blank (no segments on) ESL can be one of three things:

1. An ESL that has been programmed and has received one message, then does not receive further messages.
2. An ESL that has been "reset" (battery taken out and shorted, which causes the ESL to display all segments on, and go into its "Program State") and does not detect RF energy for 34 minutes.
3. An ESL with a dead battery.

6.1 Troubleshooting Blank ESLs

The following steps must be taken to determine which state the blank ESL is in:

1. Locate the blank ESL.
2. Write down the ESL Address and the Product name.
3. In the ShelfServer User Interface, go to the Product Search screen.
4. Perform a search using the ESL Address (ie. 0x7ffed988).
 - If the ESL Address is not found, it is not currently in the ShelfServer database. This ESL can be power cycled and reprogrammed (within 34 minutes). The ESL should not be power cycled until its ready to be programmed.
 - If the ESL does not return to the "Programming State" after the power cycle, the battery is probably dead. Replace the battery or replace the ESL and place the bad ESL with others awaiting maintenance.
5. If the ESL Address is found, select  Manage ESLs and note the status of the blank ESL (There may be more than one ESL associated with the product).

6. If the blank ESL status is *Pending* or *Unbound*, it was probably programmed and did not receive all of its messages. A blank register is currently displayed. Perform a check, while the ESL is under its assigned ACA. If another ESL is associated with the same product as the blank ESL, there's a chance that someone already programmed another ESL for the product; check with store personnel. If another ESL has been programmed and the customer only wants one ESL for the product, delete the blank ESL from the ShelfServer system. The deleted ESL can be power cycled and reprogrammed, however, the ESL should not be power cycled until its ready to be programmed.
 - If the ESL refreshes and the correct price is displayed, ShelfServer is now communicating with the ESL.

Appendix A. Programming the EAP and Handheld Terminal

At some point it may be necessary to program the Ethernet Access Point (EAP) and configure the Handheld terminal. This appendix describes the procedures necessary to perform these tasks.

A.1 Aironet EAP Installation and Setup

On a new installation, it is necessary to program the Ethernet Access Point (EAP) prior to use. This is done via a serial port console which can be either a dumb terminal or a PC running a terminal emulation program. The following steps cover installation and configuration to with ShelfServer. For detail and trivia regarding menu items not related to this installation, refer to Aironet's "ARLAN 630" User's Guide (Aironet Doc 710-001559).

A.1.1 Hardware Required

The following hardware is required to perform this task:

- Aironet access point
- 9-pin to 9-pin cable
- Dumb terminal or PC with terminal emulation program
- 10 base T cable and hub to plug it into

A.1.2 Setup Procedure

The following procedure is the step by step process required to perform this task:

1. Connect antenna and dc connectors to Aironet box.
2. Connect the PC using 9 to 9 pin cable between com1 and the Aironet box.
3. When you start the Terminal Emulation program (Hyperterminal) on your PC, ensure that it is running at 9600 baud no parity 8 data bits 1 stop bit xon/off
4. Power on the Aironet box; after a self test of about 30 sec a menu should appear on your PC screen as follows. If the 10-base-T cable is not attached, you will receive the error message "ethernet cabling problem" on the screen. This error may be ignored.

ARLAN 630 3.xx		Main Menu
Option	Value	Description
1-Configuration	[menu]	-General configuration
2-Statistics	[menu]	-Display statistics
3-Registration	[menu]	-Registration table maintenance
4-Filter	[menu]	-Control packet filtering
5-Logs	[menu]	-Alarm and log control
6-Diagnostics	[menu]	-Maintenance and testing commands
7-Privilege	[write]	-Set privilege level
8-Help		-Introduction
Enter an option number or name		
>		

Screen A-1. Main Menu

5. Ensure that privilege level (item 7) is set to **write**.
6. Select item **1-Configuration**. This will cause the following screen to appear.

ARLAN 630 3.xx		Configuration Menu	
Option	Value	Description	
1-Radio	[menu]	-Radio network parameters	
2-Ethernet	[menu]	-Ethernet configuration	
3-Ident	[menu]	-Identification information	
4-Console	[menu]	-Console set-up	
5-Snmp	[menu]	-Set snmp values	
6-Dump		-Dump config to console	
Enter an option number or name, "=" main menu,<ESC> previous menu			
>			

Screen A-2. Configuration Menu

7. Select item **1-Radio** to enter network info. This will cause the following screen to appear.

ARLAN 630 3.xx		Configuration Radio Menu	
Option	Value	Description	
1-Sid	[123456]	-System Identifier	
2-Bitrate	[860]	-Data bit rate in kilobits/second	
3-Frequency	[915.0]	-Center Frequency	
4-Root	[on]	-Enable root mode	
5-Autoscan	[menu]	-Enable auto scan mode	
6-Linktest	[menu]	-Run a link test	
7-Extended	[menu]	-Extended parameters	
Enter an option number or name, "=" main menu,<ESC> previous menu			
>			

Screen A-3. Configuration Radio Menu

8. Select item **1-Sid** to set the system identification address of the Aironet box. This is a unique identifier for the box that will be attached to each packet as it is sent out, similar to a MAC address. You will be given the option to enter **random** or **number in hex of ffffff or less**. The recommended selection is **2**.
9. Select **2-Bitrate** and set rate. Note that the higher the bit rate the shorter the radio range. Values can be set to 354, 500, 1000, or 2000 kb/s (**2000** recommended).
10. Select **3-Frequency** and set frequency. Select from values of 2.412, 2.427, 2.442, 2.257 or 2.465 Ghz (**2.442** recommended).
11. Item **4-Root** should indicate **on** in the value column, unless it is a repeater.

Note:

Normally you won't need to access **5-Autoscan**, **6-Linktest** or **7-Extended** options. Autoscan only comes to play when the Aironet is used as a repeater. Linktest can be useful if there is a question of lost packets, and Extended can be used to tweek such things as retries and refresh rate.

12. Return to the **Configuration Menu** screen and select **2-Ethernet**. This will cause the following screen to appear.

ARLAN 630 3.xx		Configuration Ethernet Menu	
Option	Value	Description	
1-Active	[on]	-Connection active	
2-Size	[1518]	-Maximum frame size	
3-Port	[Auto]	-Port selection	
4-Fallback	[Off]	-Become repeater on Lan cable fault	
Enter an option number or name, "=" main menu,<ESC> previous menu			
>			

Screen A-4. Configuration Ethernet Menu

13. Check to see that the values entered are same as above.
14. Return to the **Configuration Menu** and select **3-Ident**. This will cause the **Configuration Ident Menu** to appear as follows.

ARLAN 630 3.xx Configuration Ident Menu		
Option	Value	Description
1-Name	["Telxon_thing]	-Node name
2-Nid	[004096210cfd]	-Network address
3-Inaddr	[128.1.1.198]	-Internet address
4-Inmask	[255.255.0.0]	-Internet subnet mask
5-Ingateway	[0.0.0.0]	-Internet default gateway
6-Location	[""]	-SNMP system location
7-Contact	[""]	-SNMP system contact name
Enter an option number or name, "=" main menu,<ESC> previous menu		
>		

Screen A-5. Configuration Ident Menu

Here is where the Node name, net ID (**default** recommended) and IP address of the access point will be placed. (Check with your manager for an available IP Address) Generally, these will be the only three areas that need to be changed or checked. The node name can be anything you like (ie. eap1).

15. After all entries have been made, go to the UNIX prompt on your server and type **vi/etc/hosts**, then press . Add the IP Address and the Node name for the Access Point, then type **:wq** to save the entries and exit the editor. If you are not familiar with the vi editor you should contact your supervisor for assistance.

A.2 Configuring the Handheld Terminal

The Handheld Terminal (Portable Terminal) must be configured prior to use in a new installation, or when it has been relocated to a different system/site.

A.2.1 Configuration Procedure

The following procedure is used to configure the Handheld Terminal when required. All Handheld terminals will require a unique IP Address. If needed, check with your manager to obtain available IP Addresses.

1. Power up the 960 Handheld Terminal.
2. Press “Enter” to bring up the **Main Menu**.
3. Select “7” for **Quick Start**:

<u>Option</u>	<u>Setting</u>
0 - I/P address:	Enter IP Address assigned to the Handheld
1 - MAC Address:	PTC # (1,2,3.....etc)
2 - Ignore	
3 - Host:	Host IP Address (Server IP Address)
4 - Bit Rate:	Match Aironet to entry from step 9 A.1.2 EAP Setup (4)
5 - Frequency:	Match Aironet to entry from step 10 A.1.2 EAP Setup (3)
6 - RF Sys ID:	Match Access Point from step 11 A.1.2 EAP Setup (2)

4. Select “0” for **Scanner**:

<u>Option</u>	<u>Setting</u>
0 - Scan Device:	Laser (1)
1 - Mode:	Wedge Newline (2)
2 - Wedge Mode:	ON
3 - Auto Adjust:	OFF

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4 – Label 1

0 – Type: CODE 39

5 – Label 2

0 – Type: CODE 128

1 – Length: 0

2 – Ignore

3 – Drop Options

Drop Before: 0

Drop End: 0

6 – Label 3

0 – Type: CODABAR

1 – Length: 0

2 – Options: Both “OFF”

3 – Drop Options:

Begin 1”

End 1”

7 – Label 4

0 – Type: UPC A&E

1 – Length: 0

2 – Options

6 – Check Digit: ON

3 – Drop Options:

Begin 0”

End 1”

8 – Label 5

0 – Type: Plessey

9 – Label 6

0 – Type: EAN 8&13

1 – Length: 0

2 – Options:

6 – Check Digit: ON

3 – Drop Options:

Begin 0”

End 1"

5. Select "2" – ***Serial***

1 – Baud Rate: Equal COMTEC (9600?)

6. Select "3" – ***Terminal Configuration***

0 – Modes

6 – Map Function Keys

(Map F1 to FN1 etc. up to F10)

. (ie: to Map F1 to FN1 press; 0,1,0)

1 – Misc:

0-OFF

1-OFF

2-OFF

3-0

4-XTERM

5-OFF

6-OFF

7-Send CR-LF

8-OFF

9-OFF

10-0

7. **Save and Reboot.**

ShelfNet System Glossary

ACA

See Active Cell Antenna

Active Cell Antenna

The Active Cell Antenna is the transceiver that communicates directly to the Electronic Shelf Labels (ESL). ACAs are generally hung from the ceilings in stores where they are installed and transmit radio signals down to ESLs located in the aisle. Also referred to as an ACA.

Aisle Survey

The process of inspecting an aisle to gather specific information for use in designing and planning the ShelfNet System layout.

Attachments

ShelfNet accessory used to adapt existing retail display units to accommodate and hold an ESL in its proper location in front of the product.

Barcode

The symbolic representation of the unique number on a product that identifies information associated with that product.

Batch

Single file containing multiple product records. It is an efficient way of organizing a group of products for mass ESL programming.

Battery Key

A device used to open the battery compartment located on the back of the wireless ESL.

Bedchecking

An automatic preconfigured process by which the ShelfNet system sends a message to each ESL in the network and “listens” for a response to verify the ability to communicate.

Booting MCCs

A network operation that transmits a basic operating system to the MCC, enabling the MCC to subsequently interact with ShelfServer.

Cell

The area of radio communication coverage provided by each ACA. For a standard aisle the cell is defined as a 50'x20' rectangle, for a freezer aisle the cell is defined as a 28'x15' rectangle.

Cell Plan

A strategy for the placement of ACAs in order to provide RF coverage for each ESL in the store. A cell plan is one of the prerequisites for a slot plan.

Data Feed

File containing information that can be passed either automatically or manually to another system's software.

Downloading MCCs

A ShelfNet operation that results in a reprogramming of the MCC.

ESL

See Electronic Shelf Label

Electronic Shelf Label

A battery powered, separately addressable, portable, radio receiver and transponder in a plastic housing with an LCD, that displays price information and other retail data about products at the shelf edge. Also referred to as an ESL.

ESL Address

A unique identifier assigned and physically affixed to each ESL, represented with a barcode and a series of numbers and letters.

ESL Address Label

A self-adhering paper label attached to the ESL which displays the unique ESL address, normally affixed to the side.

ESL Buttons

Two buttons located on the ESL that, when pressed individually or in combination, display additional product information which is configurable based on each store's requirements.

ESL Commissioning

A store operation that associates a product with an ESL.

ESL Key

A ShelfNet accessory that is used to remove an ESL from its shelf attachment.

EAP

See Ethernet Access Point

Ethernet Access Point

A component which acts as the bridge between an Ethernet wireless device and the Ethernet wired network. Also referred to as an EAP.

Firing

A roundtrip sequence between an MCC and an ACA over one port during one slot. This event occurs simultaneously on each MCC in the system.

Flooding

Allows the system to locate a lost ESL by communicating with every antenna simultaneously in the store.

Frame

The set of slots that constitutes the defined firing cycle. In an 8-slot plan the frame is the collection of slots 1 through 8 transmission.

Gondola

A retail product display unit commonly found in a grocery store, usually 4 feet long, generally consisting of shelving or backboard to display products offered for sale.

Handheld Terminal

A portable scanning device that provides a user interface to communicate with the ShelfNet system, providing the capability to scan products, ESLs and use Power Applications directly from the store aisle. A portable printer can be attached to allow for printing overlays in the aisle. Also referred to as a Portable Terminal, Portable Data Entry System (PDES), or Scanner.

Hub

An Ethernet network component used to provide a communication link between the multiple network devices, such as the ShelfNet system processor and the Multicell Controllers.

ISP

See In-Store Processor

In-Store Processor

The central computer system that receives, stores and processes product and price information, and controls the cash registers (POS System) in the store. Also referred to as the ISP.

Intruder ESL

An ESL which has no association with any product contained in the product database.

Location Code

A series of numbers and or letters identifying a specific area of the store, (e.g. L2 is location 2)

Location Id

See Location Code.

MAC Address

A unique hardware address assigned during manufacturing to a computer network component that identifies it as a distinct entity.

MCC ID

A unique identifying nickname assigned to each MCC at time of installation, such as MCC1, MCC2, etc.

MCCUT

A software application run to load the controlling program into the MCCs at time of system boot or MCC device reboot request during system operation.

Merchandise Data Information

Data other than price, including unit of measure, package size, and product information. This data resides in the MDI file.

Morning Process

A ShelfNet process that reviews the database for changes in merchandising data collected over the last 24-hour period, such as a product information update causing a new ESL overlay to be required, and presents the results in the form of a report. This process runs at the same time every day, which may be configured differently to meet the requirements of each store.

MCC

See MultiCell Controller

MultiCell Controller

Provides full-duplex control, and the data link between the ShelfNet processor and each connected Active Cell Antenna. Also referred to as an MCC.

Non-Responding ESL

An ESL that failed to respond to the bedcheck communication by the system.

Non-Responding MCC

An MCC that failed to respond to the bedcheck communication by the system.

Overlay

An adhesive paper label that attaches to the face of an ESL, containing product information such as description, order number, unit of measure, package size, UPC code, etc.

P.O.P.

Point of Purchase; also used with Power Application name, i.e.QuickP.O.P.

Paper Shelf Label

A printed paper label still used in supermarkets to display price and product information. ESLs are a state-of-the-art replacement.

Price Change Data Information

Product price data; resides in the PCDI file.

Pending ESL

An ESL that failed to respond to the last message sent by the system; an ESL not responding to a system inquiry or price change.

Pending MCC

An MCC that failed to respond to the last message sent by the system; an MCC not responding to a system inquiry or price change.

Point of Sale System

The combination of cash registers (POS Terminals), controllers and software that manage sales transactions.

Port

The connection on the MCC allowing for the attachment of an individual ACA. Each MCC has 8, 16, or 24 ports, depending on model.

Portable Terminal

See Handheld Terminal.

Power Applications

Applications that allow retailers to relay product information other than price to the shelf edge. Completely customer configurable, these applications cover areas of merchandising, replenishment, planogram compliance and strategic pricing.

Rail

An attachment that fits into the c-channel on the store shelf and holds the ESLs in place for easy viewing.

Scanner

See Handheld Terminal

Scan File

A batch file created by use of a handheld terminal (scanner) to associate numbers of products to ESLs.

ShelfServer

The software component of the ShelfNet System. ShelfServer consists of a set of software processes and tools that control all the functions necessary to manage and utilize the ShelfNet system.

Site Plan

A drawing of the existing facility and services, used during pre-installation planning to create the Cell Plan and the Slot Plan.

Site Survey

The process of collecting the necessary data to determine the number and placement of ShelfNet components required for an installation.

Site Survey Form

The ERS form used to record the data collected during the site survey.

Site Survey Kit

Set of tools and materials recommended to conduct a site survey.

Slot

A 1/8 second, which is a 125 millisecond (125 msec), interval during which an ACA firing (transmission) occurs.

Slot Plan

The final drawing created from the site plan depicting antenna locations, MCC assignments, port assignments and slot assignments for the complete installation.

Slot Plan Activation

A ShelfNet operation in which the slot plan is input to ShelfServer, a store.map file is generated, and this information is downloaded to the MCCs in order to begin active interaction with ESLs.

SSUI

See ShelfServer User Interface.

ShelfServer User Interface

The software module which allows the ShelfNet system user to communicate and interact with the ShelfNet System. It runs as a foreground task. Also referred to as the SSUI.

Store.Map File

The ShelfServer table that specifies the slot plan, and associates shelf locations with ACAs.

Transceiver

A radio transmitter/receiver combined in one device.

UPC

See Universal Product Code

Universal Product Code

A barcode, usually on a product, that contains product identification which can be electronically scanned to retrieve additional information.

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Planning and Installation Guide**

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Electronic Retailing Systems International, Inc.
488 Main Avenue
Norwalk, CT 06851-1007