E-Learning

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Table of Contents

Chapter 1 - Introduction

This Red Paper is a practical guide for technical users, installers, system administrators, and programmers who implement, maintain, or develop applications for your PeopleSoft system. In this Red Paper, we hope to provide some insight and guidance into Peoplesoft Enterprise Learning Management 9.0 and how it integrates with third party content and testing engines so as to give a seamless access to the content to the users of ELM. ELM manages the catalog, registration of courses and scheduling of activities for the third party content and then allows a user to launch and view it through launch links in ELM. For SCORM and AICC compliant content, ELM tracks information like bookmark and scores. This red paper covers the following topics:

- The need for compliance and the level supported by ELM 9.0
- The architecture for importing content into ELM
- The architecture for launching compliant content
- The architecture for tracking data
- Special configuration setups required.

This red paper is primarily intended for learning administrators interested in integrating compliant content with ELM and for field consultants implementing the integration with compliant content.

We would recommend that this Red Paper be reviewed prior to beginning the upgrade process, and then used as a resource throughout the process. We hope that it will be useful, and have made it as inclusive and accurate as possible as of the time of this writing.

Related Materials

The ELM development staff have also authored a number of other technical Red Papers that, while not specific to Upgrade, may also be beneficial to you in understanding the new architecture and functionality of ELM 9.0

Chapter 2 - Motivation for SCORM/AICC compliance support

By being compliant with SCORM/AICC content, ELM provides the following advantages:

- Low cost of integration for the customer.
- Higher reliability since the ELM e-learning integration architecture is common across all the content vendors.
- Wide choice of content since most major content vendors support SCORM/AICC compliant content.

Chapter 3 - Level of compliance

ELM is:

- SCORM 1.1 minimum level compliant

  Elements tracked are:

  - Student_id
  - Student_Name
  - Credit
  - Lesson_Location
  - Lesson_Status
  - Score
  - Total Time

- SCORM 1.2 minimum level compliant

  Elements tracked are:

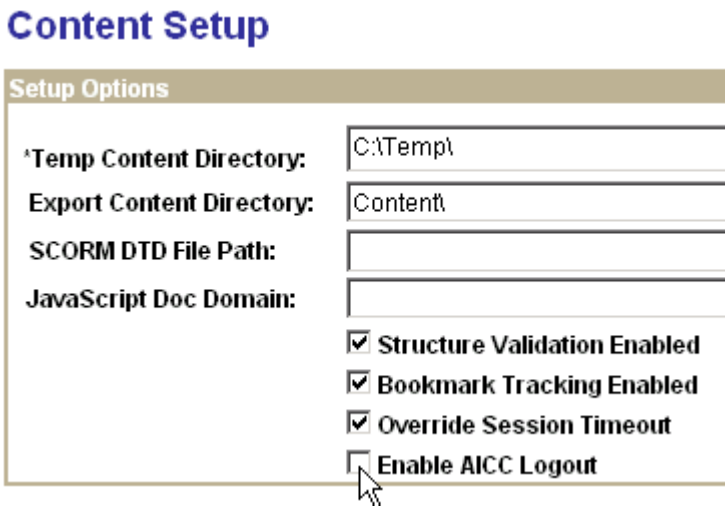
  - Student_id
  - Student_Name
  - Credit
  - Lesson_Location
  - Lesson_Status
  - Score
  - Total Time

- AICC-HACP level 1 compliant (with additional support for objectives_status element)

  Elements tracked are:

  - Student_id
  - Student_Name
  - Credit
  - Lesson_Location
  - Lesson_Status
  - Score
  - Total Time
  - Objective Scores

ELM also supports AICC Logout function provided AICC-compliant content uses this function. To enable AICC logout, navigate to Set Up ELM > Catalog > Content and check the Enable Logout checkbox.



Once enabled and if the content send a logout command, learners will be logged off ELM upon exiting the content window.

Chapter 4 - Set Up Launch and Track

In AICC, the lesson sends back tracking data (scores, statuses, bookmark) using HTTP POST calls. The Peopletools Authentication code authenticates these calls and if they're from the same session as the PIA session, the calls are allowed to go through. However, for some of the content, when the content is launched, a new session is created. When this happens, the calls made from the content to pass the tracking data will fail authentication. To circumvent this problem, a bypass user profile needs to be created and security settings need be changed in the PeopleTools Web Profile configuration.

TO CREATE A BYPASS USER PROFILE

- In order for the Launch and Track feature to seamlessly integrate with external systems, ELM must be enabled to bypass some of the normal PIA signon functionality. This requires the use of a default User ID and Password that can be used invisibly in the background to sign on to PIA in the case of a new content session. PeopleSoft delivers a role that incorporates the appropriate permissions to do this, but you must create a User Profile that makes use of this role.
- Navigate to User Profile administration feature: PeopleTools, Security, User Profiles, User Profiles
- Add a User Profile with a user ID of your choosing, e.g., LTUSER.
- On the Roles tab, add the following roles from the available list:
- LMLELM_ELM_User
- PeopleSoft User
- NOTE: The only permission the bypass user needs is full access to WEBLIB_LM_LEM. Open the permission list assigned to your bypass user and go to the Web Libraries tab. Add WEBLIB_LM_LEM and ensure that all LM_ISCRIPTs have full access permissions. This is the only thing needed to accept AICC tracking calls.
- Fill in the remainder of the User Profile data as appropriate.

Note: For more information on PeopleTools Security, including User Profiles, Roles, and Permission List, please consult your PeopleTools PeopleBooks.

TO MODIFY THE PIA CONFIGURATION

- The PIA Configuration of the Launch and Track control site needs to be modified to allow for seamless background signon. If you have created a second PIA site to serve as the Launch and Track control site (see above), you will need to create a new Web Profile for it and modify the bypass credentials. If you are using your primary PIA site as your Launch and Track conrol site, the PIA Configuration for your primary site (default Web Profile) should be modified.

- For PT 8.44 and later the bypass user is configured in PIA directly. Navigate to PeopleTools > Web Profile > Web Profile Configuration. Select the active web profile for the current PIA site (the default value is typically DEV). The currently active web profile

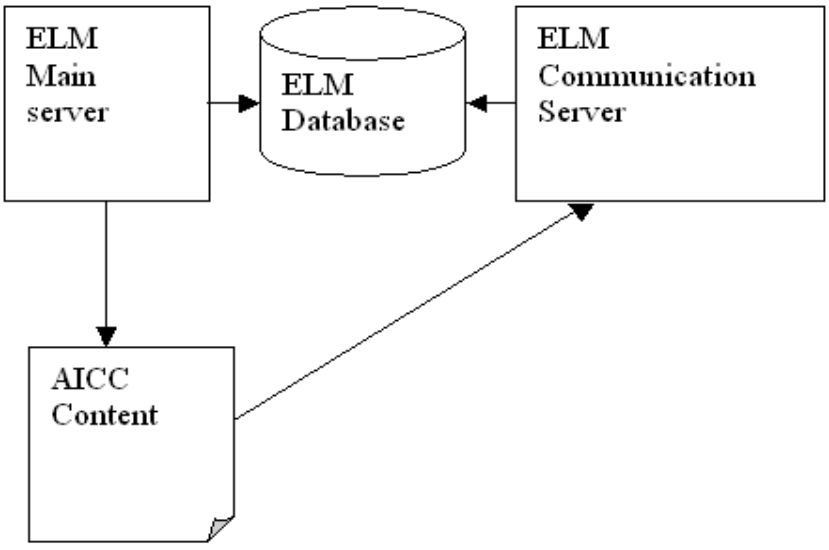
can be determined by checking the configuration.properties file under <PS_HOME>\webserv\<your_WebLogic_domain_name>\applications\<application_name>\PORTAL\WEB-INF\psftdocs\<your_site_name>.

- On the General tab ensure that CompressResponses checkbox is unchecked (False)
- Click the Security tab and modify the following parameters in the Public Users group box to the values indicated:
- Allow Public Users – checked (True)
- User ID = <LTUSER>
- Password = <LTUSERPWD>
- Where <LTUSER> and <LTUSERPWD> are the User ID and Password you create in the procedure above.
- Save the page.
- After these changes are completed, the webserver should be stopped and restarted.

Note: For more information on these parameters and the configuration.properties file, please consult your PeopleTools PeopleBooks.

Changing the above settings will cause all pages and component accesses to bypass the security. For example, in a system with the above settings made, accessing an email notification will login the user with the above credentials automatically.

In order to avoid this problem, the following configuration is recommended.



As seen above, the AICC content is launched from the main ELM server (Server which is used by learners and admin to use ELM). However, the tracking data is sent back to a parallel server setup only to receive this data. So, only this ELM communication server needs to have the configuration.properties set. The configuration.properties entry for the main ELM server can be left untouched.

TO CREATE A LAUNCH AND TRACK CONTROL SITE

- For details on creating a PIA site, see the PeopleTools 8.4x Installation and Administration PeopleBook.

Note: The Node name Portal name for the web server hosting the Launch and Track control site should match those for the webserver hosting the primary PIA site.

Warning: You must use a second PIA site as a Launch and Track control site if:

- You are using AICC-compliant content **AND**
- Your location of the Launch and Track control site is on a webserver separate from the webserver handling your primary PIA site.

- Please refer to the *To Modify the PIA Configuration* section to configure the web profile for the Control Site.

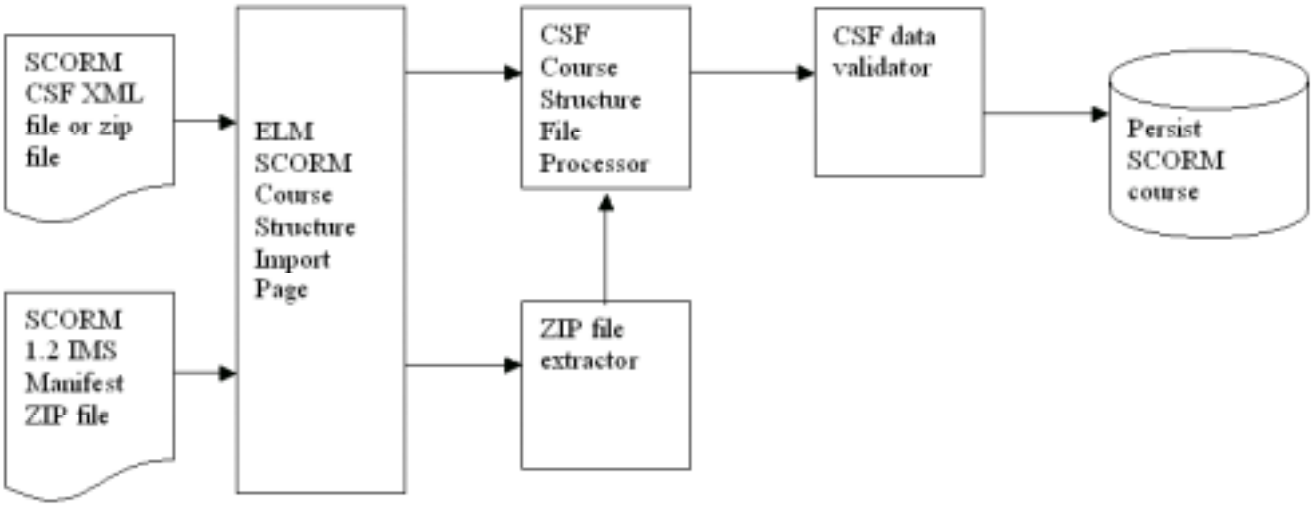
TO CONFIGURE THE LAUNCH AND TRACK COMM SERVER URL

In order that the content knows the location of the ELM communication server, a URL entry found under PeopleTools > Utilities > Adminstration > URLs, **LM_LT_COMM_SERVER**, in the ELM main server must contain the URL of the ELM Comm server.

For example, if the ELM Comm server is hosted in http://comm.elm.com:7777, then the LM_LT_COMM_SERVER entry will be: **http://comm.elm.com:7777**

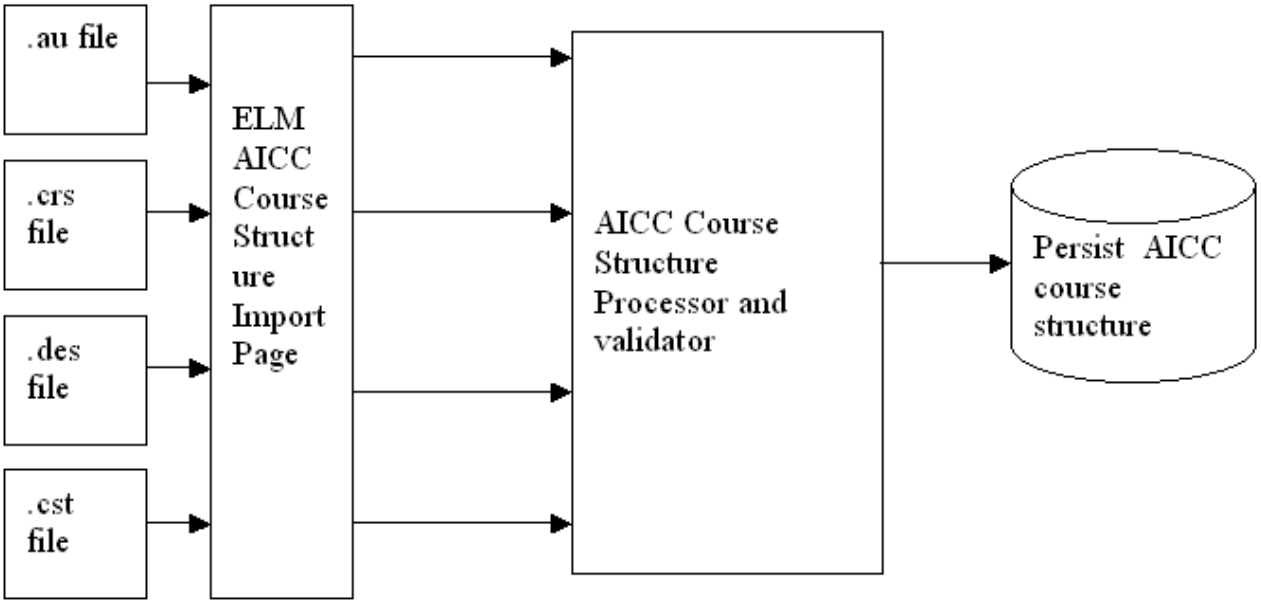
Chapter 5 - Architecture for importing content structure

SCORM 1.1/1.2



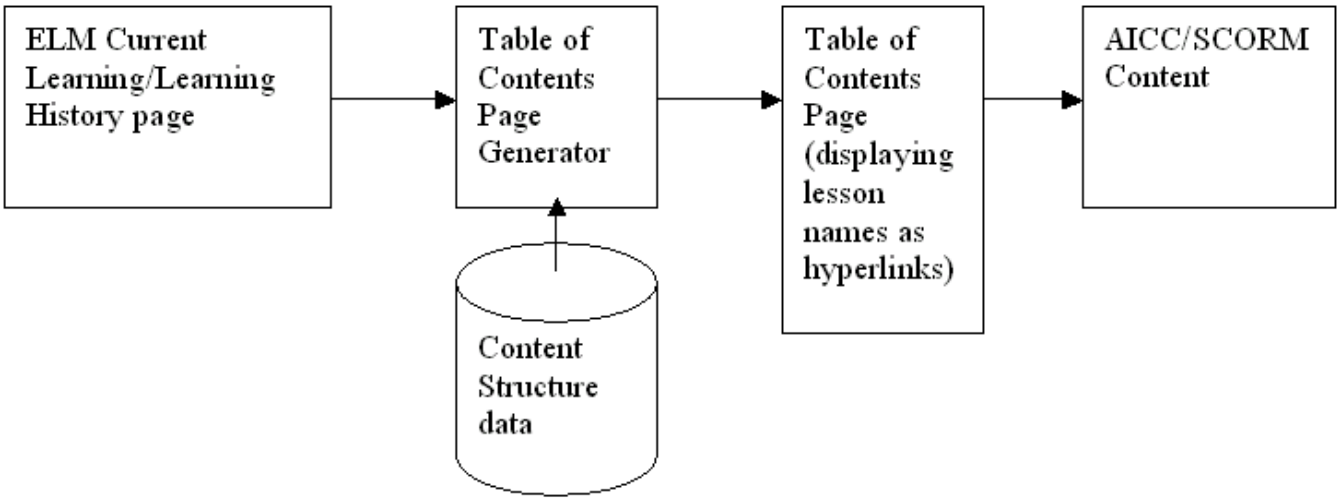
As shown above, the CSF Course Structure File Processor takes either the SCORM 1.1 CSF xml or the SCORM 1.2 imsmanifest.xml file and parses the file. It identifies the scos and blocks in the file and then submits it for validation to the CSF data validator . The CSF data validator checks for validity of the various elements. After validation, the tokenized course structure data is persisted in the database.

AICC-HACP



The AICC course structure files can be uploaded through an admin page in ELM. After the files are uploaded, the files are sent to the AICC Course structure processor and validator which runs validation on these files to ensure consistency. After successful validation, the tokenized course structure data is persisted in the database.

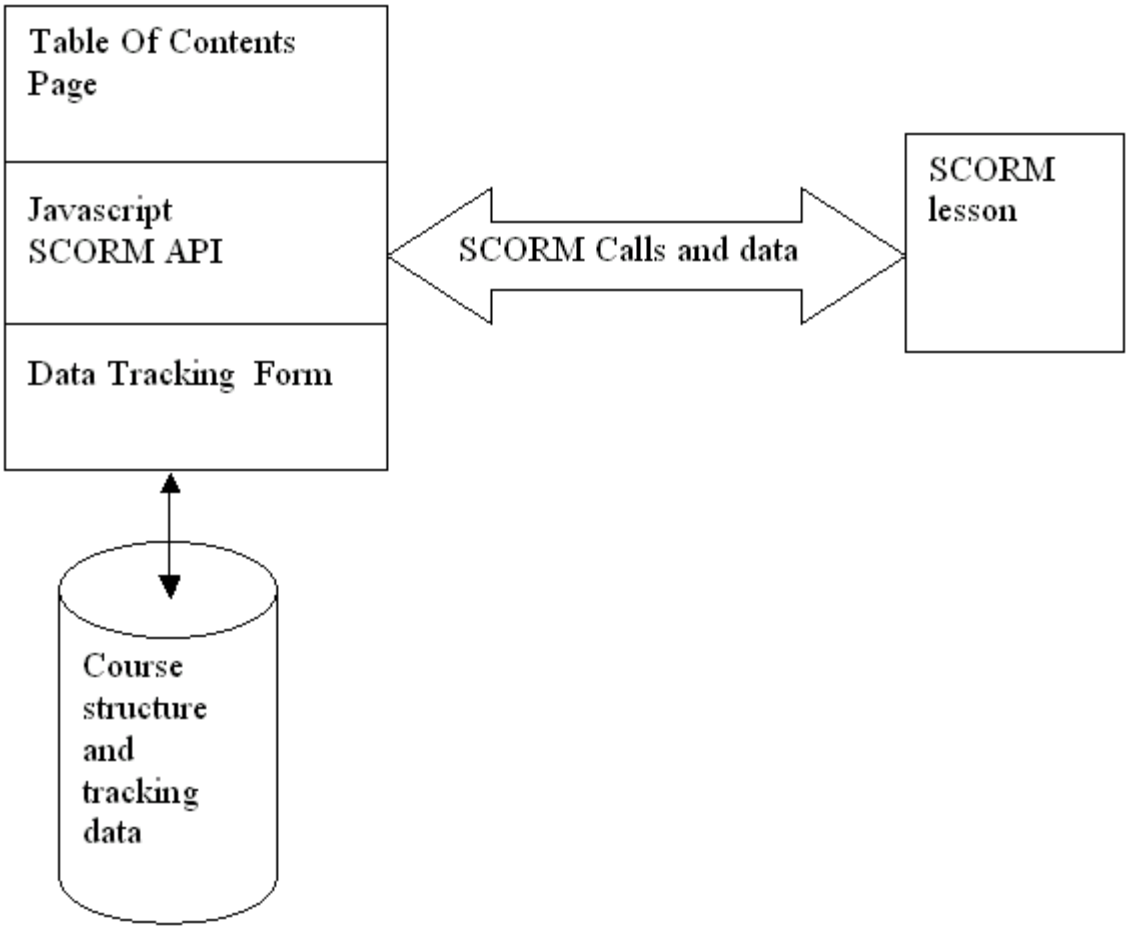
Chapter 6 - Architecture for Launching lessons



Clicking on the launch link in the Current Learning or Learning History page will invoke the Table Of Contents Page Generator. This generator will read the tokenized content structure data from the database and then based on the hierarchy of blocks and scos, will then generate the Table Of Contents page dynamically. When the user clicks on any lesson link in this page, the AICC/SCORM content is launched with the appropriate parameters. In case of SCORM/AICC, the Table of Contents page contains the SCORM javascript API

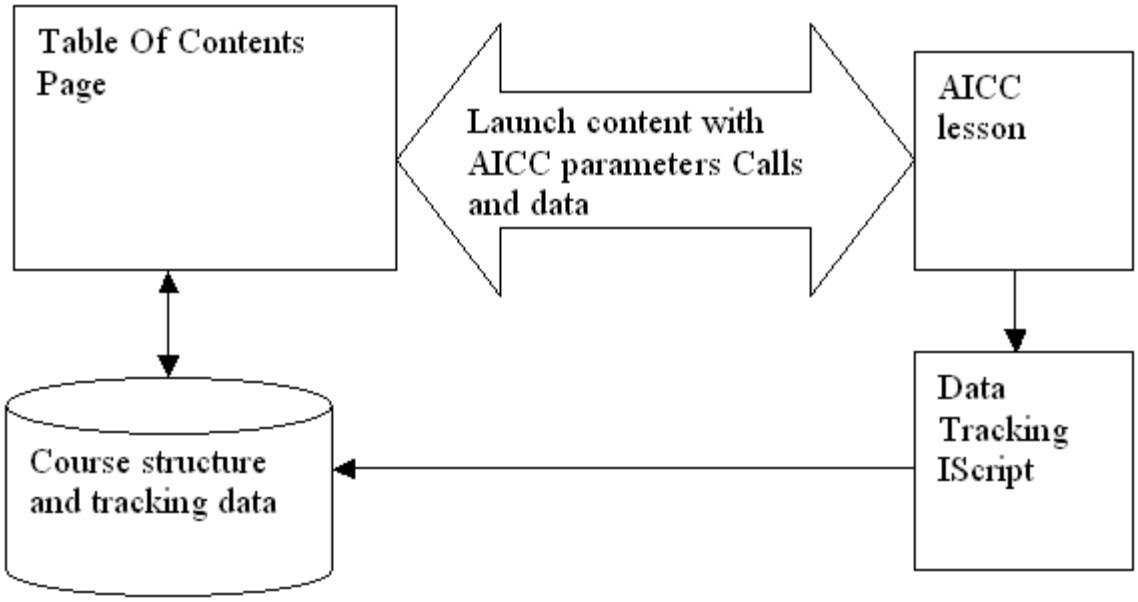
Chapter 7 - Architecture for Tracking data

SCORM1.1/1.2



The Table of contents page contains the javascript SCORM API that communicates with the SCORM API of the content. Any data that is required by the content is obtained using the DataTracking Form which resides in the Table of Contents page. Similarly, any data that is sent back by the content is persisted to the database using the DataTracking Form.

AICC-HACP



The AICC lesson is launched with all the required AICC parameters. Tracking data sent back from the lesson is sent to an IScript which parses the data and then persists it in the database.

Chapter 8 - SCORM cross-domain issue

SCORM communication takes place using javascript calls from the SCORM content to ELM. Internet Explorer has a restriction that does not allow cross-domain javascript calls. These are the scenarios:

Scenario 1: The content and ELM are both hosted in the same web domain.

For ex:

Content is hosted on http://elm.peoplesoft.com and ELM is also hosted on http://elm.peoplesoft.com

The above scenario will work without any configuration changes since the web domains for the content and ELM are the same

Scenario 2: The content and ELM are both hosted in the same second level web domain.

For ex:

Content is hosted on http://content.peoplesoft.com and ELM is hosted on http://elm.peoplesoft.com

In the above, the second level domain, peoplesoft.com, is common to the content as well as ELM

The above scenario will not work out of the box since the web domains for the content and ELM is not entirely the same.

The following needs to be done:

- In Setup ELM-> Catalog-> Content, set the **Javascript Doc Domain** to **peoplesoft.com**
- The content vendor needs to set the 'document.domain' in their javascripts to **peoplesoft.com**

Scenario 3: The content and ELM are hosted in totally different web domains.

For ex:

Content is hosted on http://content.abc.com and ELM is hosted on http://elm.xyz.com

Since the domains are entirely different, SCORM communication cannot take place between the content and ELM. Such a situation cannot be supported without the network administrator making network mappings on the user's workstations.