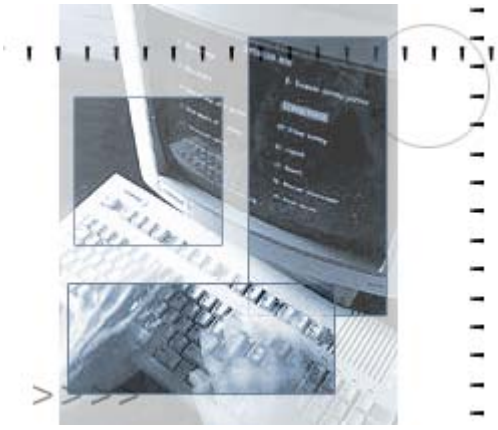
Managing Terminal Service Features within a Classroom Environment



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Problem Identification

This self-paced instructional manual provides goals, objectives, and evaluations for critical common tasks to be learned when managing various features of the Terminal Services Software Manager. Using a goal analysis, it was identified that a high rate of faculty members may not know how to properly utilize or operate the Terminal Services provided in the newly remodeled Jr. High School Computer Lab. The problem was identified by reviewing the Instructional Technology records in which faculty members have requested support over how to access and execute various features of the Terminal Server Management Software. In addition to reviewing faculty instruction request records, the number of acceptable use policy forms requesting administrative client passwords by faculty members was reviewed. A correlation was made that due to the lack of administrative client passwords requested by faculty members. Based on this correlation, it was further identified that lab usage is not being used to it fullest potential and is only being utilized by select faculty members who are aware of and understand the services offered within the labs server environment.

Therefore, after a thorough analysis, the goal of this instruction is to know how to use the Terminal Services Software Manager in order to overcome the initial intimidation experienced when incorporating the use of the lab into curriculum. If properly used, the various features offered by Terminal Services Software Manager will decrease classroom management time while increasing faculty instructional time in the lab. Learning how to manage the various features of the Terminal Server Services Manager will increase

faculty instruction time because it is an easily structured, secure, and manageable way to present, individualize, and monitor instruction. Understanding how to manage various features of the Terminal Server Services Manager, not only improves instruction, but it builds a strong foundation for further faculty instruction in other network applications that support the long term needs of the district such as cross-curriculum development and management.

Audience Definition/Learner Analysis

General Characteristics:

1. Male and females professional educators and selected administrative employees
2. Ages range from 25+ years old
3. Completed 4 years of college level instruction
4. Computer experience ranges from novice to expert

Specific Characteristics:

1. Must have requested and received a pre-assigned administrative username and password by Network Administrator to access the Terminal Server
2. Must be at sitting at a client computer in the computer lab Room 215 if practice of content is to be completed this instruction
3. Must have a working knowledge of Windows Operating System Desktop
4. Must know how to maneuver, position, and execute operations using the computer mouse and keyboard
5. Might need a basic understanding of Local Area Network
6. Might need a basic understanding of the network drives that are located on the school Local Area Network
7. Must be motivated to learn and implement technology into existing curriculum

Goal Analysis

Initial:

Prior to deciding on a deciding on a topic a goal analysis was conducted and provided a general aim of creating a self-paced instructional manual in the area of Instructional Technology. The initial goal was identified in conjunction with a subject matter expert in the field of Network Design and Administration. The subject matter expert has over seven years of experience designing and administrating networks and servers.

Refined:

After the initial goal was established the aim was further refined to properly understanding and operating within a Terminal Server Environment. At this stage brainstorming sessions were conducted between the instructional designer and the subject matter expert to continue to define and fine tune the aim and solidify it into a final instructional goal. It was decided at this point that the instruction would revolve around training a specific group of faculty members to at least the minimum standard of being able to login and manage the most important service offered within the Terminal Server Environment.

Final:

It was finally decided after several brainstorming sessions and conducting interviews with several faculty members, that it would be best to focus instruction on understanding the Terminal Services Software by being able to manage certain features within the Terminal Server Environment.

Task/Content Analysis

Some sections of the Task/Content Analysis contain additional knowledge that is associated with a more advanced and deeper understanding of operating within a network or terminal server environment. These sections may serve as a quick reference guide for designers or aid in further development of more advanced instruction. Throughout this instruction, the terms client and user maybe used interchangeably and represent either administrative (teacher) or basic (student) clients.

1. Network Configuration
- **a.** Local Area Network (LAN)
    1. A network of computers that are in the same general physical location
    2. Client computers are connected to (LAN) using Cat 5 cable
    3. Data transfer speed within (LAN) is 100 Mega bits per second
    4. Provides access to various shard drives located on the server
        a. H:/Drive (Personal user drive)
        b. M:/Drive (Applications drive)
        c. S:/Drive (Student Folders)
        d. T:/Drive (Local Area Assessments)
    5. Network Administrator overseas the reliability, integrity, security, and manageability of all networked computers and clients

2. Types of Servers
- **a.** Server
    1. Dell Power Edge 2800
        a. Computer that provides one or more services
        b. Central hard drive for data storage and retrieval
        c. Organizes data into shared drives for access by clients
- **b.** Client
    1. Any computers connected to the server
        a. Uses one or more of the services running on a server machine
        b. Stores and retrieves data stored on the central server hard drive

3. Server Operating System
    a. Windows Server 2003
        1. Multipurpose operating system capable of handling a diverse set of server services
            a. File and print server
            b. Web server and Web application services
            c. Mail server
            d. Terminal server
            e. Remote access and virtual private network (VPN) server

            Directory services, Domain Name System (DNS), Dynamic Host Configuration Protocol (DHCP)

4. Types of Clients
    a. Administrative
        1. Authorized administrative employees
        2. Authorized faculty members

    b. Basic
        1. Authorized students
        2. Authorized full and part-time employees

5. Terminal Server Client Policies
    a. Allows administrative clients throughout the network the ability to
        1. Configure unrestricted client settings on all computers that are logged on Terminal Server as users
        2. Create, rename, move, and organize client server folder(s)
        3. Run unrestricted third party software application(s)

    b. Provides basic clients throughout the network the ability to
        1. Access to any unrestricted Windows-based program remotely installed on the terminal server
        2. Access to any unrestricted Windows-based application remotely installed on the terminal server
            a. Run programs and applications
            b. Save files
            c. Use network services
        3. Access Windows desktop on any unrestricted networked computing device

    c. Client policies are a part of Microsoft's Windows Server 2003 security and management. The policies assist the administrator in increasing the reliability, integrity, security, and manageability of all networked computers and users. Additional restriction policies include but are not limited to the ability

1. Regulate which ActiveX controls can be downloaded
2. Run only digitally signed scripts
3. Enforce only approved software to be installed on system computers
4. Lockdown machines
5. Determine, configure, and set up network privileges according to privilege levels listed below
    a. Full unrestricted access
    b. Limited restricted access
    c. Restricted access based on need
6. Ban administrative and user client Terminal Server Access

6. Establish access to the Terminal Server as a Administrative Client

1. Administrative clients must sign acceptable use policy form which can be picked up and returned to Network Administrator
2. Terminal Server administrative client username and password is determined by Network Administrator
3. Administrative client privileges are determined by Network Administrator
4. Administrative client privilege level is determined by Network Administrator at the time username and password is established
5. Once Terminal Server access is established by the Network administrator, a paper copy of administrative client's username and password will be delivered via interoffice mail to faculty mailbox for pickup
6. Entire process of establishing access to the Terminal Server as an Administrative Client takes approximately two days from the time the Network Administrator receives the acceptable use policy form and establishes administrative client privileges

7. Establish access to the Terminal Server as a Basic Client

1. To access Terminal Server a Local Area Network basic client username and password is required
2. Basic Terminal Server client username and password are pre-determined by network administrator
3. Username and password is printed on sticker located on the top of each client computer monitor (Username = JHT # Password = JHT #)
4. Basic client privilege level is determined by Network Administrator

8. Access Terminal Services Manger Software as an administrative client

a. Administrative (Teacher)

1. Wait for computer to boot up and load the Windows desktop (See Step 9 to know login cues and how to tell when you are properly logged on)
2. Once desktop is loaded place mouse cursor over the icon title JHT located on the left hand side of the screen and left click it to open the Terminal Server Network login box
3. After the Terminal Server Network login box appears place mouse cursor in white area next to where it says username in the login box and click on the left mouse button
    a. You will see that a blinking mouse cursor now appears in the white area of the login box
4. Type your pre-assigned administrative client username into white area of the Terminal Server Network login box using the keyboard
5. Repeat Step 4, but this time place mouse cursor in white area next to where it says password in the login box and click on the left mouse button
6. Type your pre-assigned administrative client password into white area of the Terminal Server Network login box using the keyboard
7. Place mouse cursor over the login button located on the login box and left click the mouse and wait for the computer to log you on the Terminal Server
8. If username and password are entered correctly you should see a series of network configuration connection scripts and hear the Windows boot-up audio playing
    a. Scripts are programming language used to authenticate a connection to the server
    b. Windows boot-up audio is a series of chimes
9. Wait approximately ten seconds for a proper connection to be established with the Terminal Server
    a. Note:
        i. Wait times varies depending on how many other clients are attempting to logon network at same time
10. Immediately after seeing the script and hearing the boot-up audio start, the computer will start the regular boot up sequence and load a new desktop based on passwords privilege level and user defined settings

b. Basic Client (Student)

1. Basic client username and password is printed on sticker located on the top of each client computer monitor (Username = JHT # Password = JHT #)
2. Follow administrative login procedures Steps 1-11, except use the basic client username and password mention (Username = JHT # Password = JHT #)

9. Know when you are logged on the Terminal Server desktop as an administrative or basic client

a. Administrative desktop is loaded when you stop hearing the Windows boot-up audio and see the Windows desktop.

1. As an administrative client you will see very subtle differences in regards to the appearance of the normal Windows desktop
    a. The subtle differences you will see include:
        i. Shortcut to desktop folder icon
            1. Used to monitor, manage, and configure advanced Terminal Server Remote Desktop
        ii. Terminal Services Manager Icon
            1. Used to open the software from which Terminal Services are managed
2. Possible error messages and sounds you my see and hear if an error is made during log in
    a. Windows error audio sound
    b. Caps lock on dialog box appears
    c. Username or password typed incorrectly dialog box appears suggesting possible fixes to overcome possible input errors

b. Basic client desktop is loaded when you stop hearing the Windows boot-up audio and see the Windows desktop.

1. As a basic client you will see the regular Windows desktop pre-configured by the Network Administrator or administrative client
2. Possible error messages and sounds you my see and hear if error is made during log in
    i. Windows error audio sound
    ii. Caps lock on dialog box appears
    iii. Username or password typed incorrectly dialog box appears suggesting possible fixes to overcome possible input errors

10. Check to ensure you are properly logged on the Terminal Server under pre-assigned administrative client username or to access Local Area Network H:/Drive

- **a.** From the Windows 98SE desktop, place the mouse cursor over the My Computer icon and left-click to execute the operation to open page
- **b.** After left clicking wait approximately 2 seconds for the My Computer page to load in the window
- **c.** Once new page is properly loaded you will see various headings on the page, look towards the bottom of the page and find the heading titled Network Drives
- **d.** Locate H:/your username under the heading Network Drives
- **e.** Once you see H:/your username, you are properly logged on the Local Area Network and Terminal Server and ready to begin manipulating various features of the Terminal Server environment.
    1. Note:
        a. To access personal folders located on the H:/Drive place mouse cursor over the icon titled H:/your username and left click mouse to execute the operation to open drive folder
        b. H:/Drive is a personal Local Area Network folder where all documents are saved
- **f.** Return to the Windows desktop by placing the mouse cursor over the Red X located in the top right hand corner of the page and clicking the left mouse button

11. Terminal Services Manager Software

- **a.** Administratively configure client computer(s) transparently from virtually any computer on your network after logged on Terminal Server
- **b.** Actively manage network clients, operations, processes, and resources from a remote location
- **c.** Administratively monitor client computer(s) transparently from virtually any computer on your network

12. Terminal Services Manager Software Features

- **a.** Connect: Connect to another client's session from within an existing session. Connecting client assumes full control of all applications running on the server. Connecting user is logged in under their username and password.
- **b.** Disconnect: Disconnect an active session, the session remains attached to the terminal server in a disconnected state and applications continue to run. The applications remain running until the session is reconnected, no loss of data.
- **c.** Send Messages: Send text messages to basic client users whose sessions are in the active or connected state

d. Remote Control: Administratively control a computer from virtually any computer on your network. Take over all features of the control computer including mouse and keyboards functions.

e. Reset: Client session is immediately deleted from the server, ending all open applications and losses unsaved data.

f. Status: Client session's status information is displayed including time and application log and other usage statistical data related to session.

13. Access Terminal Services Manager Software

a. From the administrative client desktop, place mouse cursor on the Terminal Services Manager Icon and click the left mouse button to execute and wait approximately 3-5 seconds for Terminal Services Manager to open (Refer to Steps 6, 8, 9, and 10 for procedures on how to gain access to Terminal Server as an administrative client).

1. Send Message to Basic Clients
    a. Move mouse curser to the access panel on left side of the Terminal Services Manager Desktop and position it over the + sign located next to the green computer icon labeled JTERM1 and press the left-click mouse button
    b. Wait for the + sign to change to a – and display the tree of connected clients (students)
    c. Connected clients can only be referenced by JHT #, so a class seating chart maybe needed to know exactly who is logged on the server from a specific client computer
    d. JHT # can be seen in parenthesis following the RDP-Tcp#
    e. Right-click on the JHT # which corresponds with client computer to which you want to send a message
    f. Left-click on highlighted send message text in the interactive dialog box
    g. Wait 2 seconds for the send message dialog box to appear in a new window
        i. Interactive Dialog Box: A dialog box that requires a response from the user
    h. Place curser in the message input box, left-click and type the information you want to send to the designated client (student)
    i. To start a new paragraph within the same message, press CTRL+ENTER on the keyboard and continue typing message
    j. To send the message, move mouse curser over the OK button located on the bottom of the message dialog box and click the left mouse button

k. Messages sent to client computers via the send message feature can only be viewed, client computers can not respond to messages

    i. Note
        1. Use the send message feature to notify users of impending disconnection, server status, or other information
        2. Messages can only be sent to client computers whose sessions are in the active or connected state

2. Remotely Control a Basic Client Session
    a. Move mouse curser to the access panel on left side of the Terminal Services Manager Desktop and position it over the + sign located next to the green computer icon labeled JTERM1 and press the left-click mouse button
    b. Wait for the + sign to change to a – and display the tree of connected clients (students)
    c. Logged on users can only be referenced by JHT #, so a class seating chart maybe needed to know exactly who is logged on the server from a specific client computer
    d. JHT # can be seen in parenthesis following the RDP-Tcp#
    e. Right-click on the JHT # which corresponds with client computer to which you want to remotely control
    f. Left-click on highlighted remote control text in the interactive dialog box
        i. Interactive Dialog Box: A dialog box that requires a response from the user
    g. Wait 2 seconds for the remote control interactive dialog box to appear in a new window
    h. After the remote control dialog box appears, select the key you want to use to end a remote control session, place mouse cursor on OK button and then left-click mouse button. (When you want to end remote control, press CTRL button + the hot key you have defined from the dialog box)

        i. Note
            1. Before monitoring begins, the server warns the user that the session is about to be remotely controlled, unless this warning is disabled
            2. While using the remote control feature, the initiating client shares every input and output with the session you are monitoring
    i. After left clicking the OK button, the administrative client computer may appear to be frozen for a few seconds, while it connects to the basic client computer
    j. Once connected, the administrative client will be viewing and will have full control over the exact screen that the basic client user is seeing
    k. To disconnect from a remote control session with a basic client computer, press the CTRL button + the hot key you have defined from the dialog box when remote control session was first initiated
    l. Once properly disconnected from a remote control session, the administrative client computer will be returned to the main Terminal Services Manager Desktop

Goals, Objectives, Strategies, and Test Items

Goal 1: Faculty members will know the features and capabilities of the Terminal Server Manager Software in order to use them as a prerequisite for the completion of higher instructional goals and objectives.

Objectives 1.1: After reviewing the initial presentation, faculty members will match a possible use of the connect feature according to its defined capabilities. (Concept/Application)

Objectives 1.2: After reviewing the initial presentation, faculty members will match a possible use of the disconnect feature according to its defined capabilities. (Concept/Application)

Objectives 1.3: After reviewing the initial presentation, faculty members will match a possible use of the send message feature according to its defined capabilities. (Concept/Application)

Objectives 1.4: After reviewing the initial presentation, faculty members will match a possible use of the remote control feature according to its defined capabilities. (Concept/Application)

Objectives 1.5: After reviewing the initial presentation, faculty members will match a possible use of the reset feature according to its defined capabilities. (Concept/Application)

Objectives 1.6: After reviewing the initial presentation, faculty members will match a possible use of the status feature according to its defined capabilities. (Concept/Application)

Initial Presentation: (Concept name - definition - one best example)

- ✓ Faculty members will be a shown a chart representing each feature: connect, disconnect, send message, remote control, reset, and status.
- ✓ Faculty members will read written definitions that describe each feature: connect, disconnect, send message, remote control, reset, and status.

Generative Strategy: (Organization - list characteristics - categorization)

- ✓ Using the written definitions from the chart, faculty members will write how they might incorporate each feature into their instruction.

Test Item: Match the correct Terminal Server Management Software feature next to its possible use. (Page # Item #)

Goal 2: Faculty members will know how to access the Terminal Services Manager Software in order to manage basic client (student) computers logged on the Terminal Server.

Objective 2.1: Given a worksheet, faculty members will write in the proper order the three steps used to access the Terminal Server Manager with 100% accuracy. (Procedure/Recall)

Initial Presentation: (Modeling - worked example - show procedure steps)

- ✓ Faculty members will be provided written directions on how to open the Terminal Services Manager.
- ✓ Faculty members will be shown screen shots modeling how to open the Terminal Services Manager.

Generative Strategy: (Recall - practice strategy - overtly practice the fact)

- ✓ Using a flow chart with cues, faculty members will summarize the steps needed to open the Terminal Services Manager.

Test Item:

Write in proper order the three steps used to open the Terminal Services Manager. (Page # Item #)

Goal 3: Faculty members will know the basic layout of the Terminal Server Manager Desktop in order to quickly locate and execute learned features.

Objective 3.1: Given screen shots of the Terminal Services Manager, faculty members will illustrate and label where the feature toolbar is located on the software's desktop with 100% accuracy. (Procedure/Application)

Objective 3.2: Given screen shots of the Terminal Services Manager, faculty members will illustrate and label where the client access panel is located on the software's desktop with 100% accuracy. (Procedure/Application)

Objective 3.3: Given screen shots of the Terminal Services Manager, faculty members will illustrate and label where the client status panel is located on the software's desktop with 100% accuracy. (Procedure/Application)

Initial Presentation: (Modeling - worked example - show procedure steps)

- ✓ Faculty members will read written directions describing the the feature toolbar, client access panel, and client status panel on the desktop of the Terminal Services Manager.
- ✓ Faculty members will be shown screenshots modeling the location of the feature toolbar, client access panel, and client status panel on the desktop of the Terminal Services Manager.

Generative Strategy: (Recall - practice strategy - overtly practice the fact)

- ✓ Using a list of examples and non-examples as cues, faculty members will practice matching which aspect of the Terminal Services Desktop is being described feature toolbar, client access panel, or client status panel.

Test Item:

- ✓ Illustrate and label where the feature toolbar, client access panel, and client status panel are located on the Terminal Services Manager desktop. (Page # Item #)

Goal 4: Faculty members will understand how to execute the send messages and remote control features within a classroom lab environment in order to manage and/or assist students through the curriculum and instruction.

Objectives 4.1: After reviewing the initial presentation, faculty members will correctly sequence a list of written steps used to execute the send message feature of the Terminal Server Manager. (Procedure/Recall)

Objectives 4.2: After reviewing the initial presentation, faculty members will correctly sequence a list of written steps used to execute the remote control feature of the Terminal Server Manager. (Procedure/Recall)

Initial Presentation: (Modeling - worked example - show procedure steps)

- ✓ Faculty members will be shown a list of written steps on how to execute the send message and remote control features using the Terminal Services Manager.
- ✓ Faculty members will be shown a series screen shots modeling the steps on how to execute the send message and remote control features using the Terminal Services Manager.

Generative Strategy: (Recall - practice strategy - overtly practice the fact)

- ✓ Using screen shots depicting the steps required to execute the send message and remote control features, faculty members practice arranging the pictures in proper order they would see them while using each feature.

Test Item:

- ✓ Sequence the list of written steps used to execute the send message and remote control feature of Terminal Services Manager in proper order beginning with the number 1 and ending with 6. (Send Message Page # Item #; Remote Control Page # Item #)

Pre-instructional Strategy

Overview Pre-instructional Strategy was selected to introduce the learner to the material because it allows the concepts to be framed in such a way that learners can quickly identify the benefits of this instruction. The overview will include questions and strategies that will help shape the instructional content. It will then address the benefits of using the Terminal Services within their curriculum to achieve positive outcomes within the classroom.

Sequencing

After conducting a thorough analysis of the learner and content, the World Related Sequencing Scheme (Temporal Phenomenon) was selected for this self-paced instructional manual. This method was chosen because it approaches the material in a linear manner from basic to advance in an orderly sequence of steps. This sequencing method specifically addresses this instruction over the Terminal Server Manager because it starts with teaching the basics of the Terminal Server before proceeding to the more advanced steps of understanding how to manage certain features of the Terminal Server Services Manager, and finally developing an understanding of when to utilize newly learned features during actual classroom instruction.

Formative Evaluation

Subject Matter Expert Review:

Target Audience Review: