NEC

STUDENT SERVICES

Installation Guide

NEC America, Inc.

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Chapter 1   INTRODUCTION

This guide provides the information needed to install and configure the Student Services application software. This document is based on **Release 1** of the Student Services software.

Refer also to the *Student Services Administrator Guide* for additional information. It describes the screens and functions for Administrator operation of Student Services. Additional installation and configuration information can be found in the following manuals:

- *Applications Manager (APM) Operations Manual* - Describes how applications are configured in the APM environment and how the Student Services databases are created using the entries and values provided in this guide.

- *NEAX2400 System Manuals* - Provides detailed descriptions for parameter assignments that must be made through the Maintenance Administration Terminal (MAT) commands on the NEAX2400.

How to Use This Guide

This guide describes the screens, parameters, and step-by-step procedures to install and configure all components of the Student Services software. The organization of this guide reflects the order of installation and configuration for the Student Services application and its components.

Guide Organization

Chapter 1 - Introduction

Chapter 1 details how to use this guide, the actual guide organization, and an overview of Student Services.

Chapter 2- Software Installation

This chapter describes the procedure to install the Student Services software from diskette.

Chapter 3- Application Configuration

Chapter 3 describes specific field entries that must be made or verified to properly configure Student Services for operation.

Chapter 4- MAT Assignments

Various data parameters must be set through the MAT function at the PBX. These parameters are described in this chapter.

What is Student Services?

Overview

Student Services is an application software package for the NEC Open Application Interface (OAI) environment. It operates on an NEC User Application Processor (UAP) system, in conjunction with an NEC PBX system.

The Student Services application is designed to meet the needs of a student housing facility. It provides a telephone system Administrator's interface for feature and operational scheduling of designated telephone stations and station groups.

The application updates station parameters directly to the premises NEC PBX. The PBX applies these parameters to the designated stations, providing telephone service restrictions or service changes based on a defined schedule.

Application & Functions

Often in a student housing environment, telephone service must be limited and operational capabilities changed on a scheduled basis. Daily, weekly, and special term scheduling may be required depending on the facility. Additionally, the telephone privileges and scheduling may be different for select groups of users.

Student Services provides a database for station telephone functions. The database allows existing stations to be scheduled for special operation according to the defined parameters of the schedule. Stations can also be grouped in a group database where parameters can be defined and scheduled over the whole group.

Application Components

The Student Services software package is comprised of several internal components that perform the primary application functions:

- The **Administrator** component provides the system administrator's interface to Student Services. The interface allows an administrator to add, delete, and modify records in the Student Services database files. The interface provides access to event scheduling and immediate event requests, along with record printing and database find functions.

- **StationControl** is an OAI component that uses PBX components to set route restriction class, station forwarding, and service feature class. It communicates with the PBX and performs the specified actions.

- The **StopTalk** component (also an OAI component) manages the termination of active calls when an event is started. It manages the communication between the various Student Services components and the PBX to invoke a warning announcement to the callers and to activate call termination.

- The **Override** OAI component provides a special function for the administrator. This function allows an administrator to make calls to stations that have been restricted from receiving incoming calls by a Student Services event (overriding the event restriction). This can be useful in emergency and special announcement situations.

These internal components are transparent to the administrator, but various parameters of these components must be configured during the installation sequence of the Student Services software. Configuration for these components is described in later chapters of this guide.

Databases The Student Services software application is comprised of multiple databases. Three primary databases contain all the information specific to the **Stations**, **Groups**, and the **Scheduled Events** functions of the program.

Stations	Groups	Scheduled Events
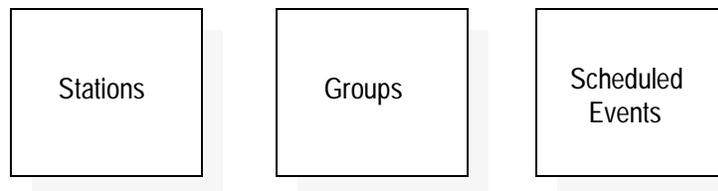
The software uses two copies of these databases; the **Working database** and the **Installed database**. The working database allows changes to be made to Student Services Stations, Groups, or Scheduled Events without affecting the realtime operation of the PBX system. The installed database is the data base actually being used realtime by the PBX for Student Services data.

Working Database

Stations	Groups	Scheduled Events

INSTALL

Installed Database

Stations	Groups	Scheduled Events
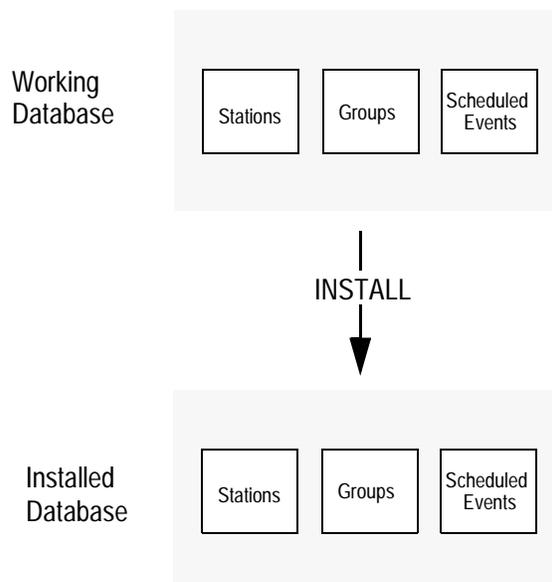
When changes are made to any of the three primary databases, they are first made to the working database copy. It is this working copy that is being changed from any of the menus and functions of the Student Services software. The **Install Databases** function of the Student Services application (or when exiting the program) will install the current working database as the new installed database.

This process ensures the PBX operates on complete data and only receives any changes all at once. This also allows major changes to the working database to be discarded if an error is made, before installing to the PBX.

Pre-Installation Requirements

The Student Services application installs to, and operates from, an NEC UAP 1000 (or equivalent) computer; operating in conjunction with an NEC NEAX2400 PBX system. No additional hardware is required for Student Services.

Student Services requires OAI Platform Release 2.0 (or greater) software to be installed and operating on the UAP computer. If this software is not currently installed on the UAP, contact a NEC representative. OAI software must be installed and operating BEFORE installing Student Services.

Installation Sequence

The installation and configuration of Student Services involves the following sequence of actions:

1. **Software Installation** — Student Services software must first be loaded from the release diskette. The procedures to load and install the software to a UAP computer are described in Chapter 2 of this guide.

2. **Application Configuration** — Student Services is internally supported by the Application Manager (APM) software operating on the UAP. Various parameters must be configured in the APM environment. Student Services uses multiple databases constructed and maintained through the APM Database Administration option. Refer to Chapter 3 of this guide for configuration procedures.

3. **MAT Assignments** — Various data settings must be assigned at the NEAX2400 Maintenance Administration Terminal (MAT) for Student Services to function. The variables , definition settings, and data parameters that must be added or modified are described in Chapter 4 of this guide.

Chapter 2　　SOFTWARE INSTALLATION

This chapter describes the procedures to install the Student Services software. Some screen descriptions list an '**Exception number**'. An Exception is an alternate screen display that may be encountered during installation. These exceptions are described in the section following the Install Procedure.

Note:　*Some keyboards use a marked **Return** key for the carriage return function. Other keyboards mark this function key as **Enter**. The installation procedure will identify this function as **Return** (Enter). When the procedure indicates, use the appropriate marked key on your particular keyboard.*

Install Procedure

```
login: apmadm
password:
```

To begin the Student Services software installation, go to an available UNIX login screen (i.e., a virtual screen, e.g., <ALT-F2>) and type "**apmadm**" at the UNIX login prompt, then press **Return** (Enter).

If your "apmadm" account requires a password, enter the "apmadm" password at the subsequent password prompt.

```
NEC America            APM Administration        Mon Jun 30,

        APM Platform Release  Rel2.4.7  (May 13, 1997)
                      Main Menu

            APM
            Debug Facilities
            Halt APM System
            File Archive
            Installation of Applications/Packages
            Configuration of UAP
            PBX Simulator
            Removal of Packages
            Start-up APM System
            Logout
            UNIX

            Enter Option:  [i]

                                        APM Status: ACTIVE
```

The "APM Administration" Main Menu.

Type "**i**" in the "Enter Option: [ ] input field and then press **Return** (Enter) to select the "Installation of Applications/Packages".

```
NEC America Inc          Student Services      Mon - Jun 30,


   Creating Directories needed
   Creating backup directory
   Decompressing files
```

Messages are displayed showing the progress of the installation.

```
NEC America Inc          Student Services      Mon - Jun 30,


 Super User (root) privileges are required to create the stactrl user account.

 Please enter the super user Password:
```

For Student Services installation, certain files must be modified that require "root" privileges.

You are prompted for the "root" password. Type in the "root" password at the prompt and press **Return** (Enter).

(Exceptions: 3)

```
NEC America Inc          Student Services      Mon - Jun 30,


 Super User (root) privileges are required to create the stactrl user account.

 Please enter the super user Password:

        Enter (stactrl) user id [8000]:
```

You are prompted for the "user ID". Type the user ID (if one has been assigned) and press **Return** (Enter).

Press **Return** (Enter) to accept the default ID of 8000.

**UNIX Subsystem
Database Update**

The SCO UNIX Subsystem database must be updated for Student Services. The databases are updated to accept the new Student Services Station Controller information.

At the UNIX prompt, login as the superuser (root) and execute the SCO UNIX Subsystem Database authorization checking program (*/tcb/bin/authck -s*) and password deletion program (*passwd -d*) as shown below.

- Answer **yes** when asked to fix the subsystem databases. This ensures that the SCO UNIX Subsystem Databases are left in a proper state. Deleting the password for the *stactrl* login name causes the system to ask for new passwords when first logging on using these names.

```
login: root
Password: <root password>
# /tcb/bin/authck -s

The following users have Protected Password Database entries
that do not match their Subsystem Database entries:
    stactrl
There are errors in the database.
fix them (y/n)?  Y <ENTER>

# passwd -d stactrl

Deleting password for user stactrl
```

This completes the software installation. Continue to Chapter 3 of this guide for software configuration.

EXCEPTIONS to Software Installation

This section describes the **Exceptions** to the Student Services software Install Procedure. An Exception is an alternate screen display that may be encountered during the installation process. An Exception may indicate an incorrect entry, an alternate selection choice, or a problem with the installation.

```
OAI Platform is at revision 5 for machine i386 (May 13 1997 Rel 2.4.7)

stactrl     Revision: 5     machine type: i386     Version: 1.
Processing, please wait...
Validating installed files
.........................................................

***  Validation error, OAI installation failed  ***
Incomplete installation of software
checksum has failed, type c to continue, x to exit:
```

Exception 1:
During the application validation process, if Student Services installation files are found to be inconsistent and/or corrupted, the error is displayed. This error indicates a serious problem with the Student Services installation files. Answer '**x**' (exit) at the prompt to exit the installation and contact your NEC representative for assistance in correcting this problem.

```
NEC America Inc            Student Services       Mon - Jun 30,


                   [U]pgrade
                   [I]nstall
                   [C]ancel Installation

                   Enter Option i
Student Services is already installed. Installing will overwrite any current
database entries. Old files will be moved to a backup directory.

Are you sure you want to install? (y/n)
```

Exception 2:
A new installation was selected when Student Services is already installed on the UAP.

To continue will overwrite the existing database for the current installed Student Services. If this is desired, type **y** (yes) at the prompt.

If this is an upgrade, type **n** (no) and re-select Upgrade.

Chapter 3   APPLICATION CONFIGURATION

This chapter describes specific field entries that must be made or verified to properly configure Student Services for operation. In addition to this chapter, use instructions found in the following manuals:

- *Applications Manager (APM) Installation Manual* - Contains step-by-step instructions for installing the software from the release media.

- *Applications Manager (APM) Operations Manual* - Explains how applications like SPA are configured in the APM environment and how the SPA database is created, using the entries and values provided in this chapter.

- *NEAX2400 System Manuals* - Give very detailed explanations about the assignments that need to be made through the Maintenance Administration Terminal (MAT) commands on the NEAX2400.

Overall Configuration Requirements

As described in Chapter 1, Student Services consists of a user interface and three OAI application components that performs the Student Services functions. The OAI applications must be configured in the OAI environment using the Applications Manager (APM). The configuration settings for each of these four application components are described in this chapter.

Note: *BEFORE beginning this configuration, the software must be loaded onto the UAP as described in Chapter 2 of this guide. Ensure the software installation procedure in Chapter 2 has been successfully completed.*

Step :   Proceed through each section, following the Step indicators (shown at left) and instructions to configure each application component for Student Services.

Configuration for Administrator

The Administrator component of Student Services is the primary user interface. Two functions of the Administrator (Screen Saver and Report Printing) must be configured. These configurations are described in this section.

Screen Saver

Student Services incorporates a display screen saver function. This screen saver will blank the display after a predetermined period of time and optionally provide for messages and multiple logos to be displayed when the saver is active.

The screen saver is controlled through a configuration file located in the "/oai/app/staCtrl/cfg" directory. The file **logos.cfg** contains the configuration variables and definitions for the screen saver. A basic template file is created during initial installation, but some unique definitions must be configured.

Screen Saver Key Variables & Definitions

The following are the key variables and definitions of the **logos.cfg** file for the screen saver:

- **SAVER_DELAY**   *x*
  where *x* is the number of seconds the terminal must be idle before the screen saver is activated.

- **REFRESH_DELAY**   *x*
  where *x* is the number of seconds a screen saver logo is displayed before it is refreshed.

- **LOGOS_COUNT**   *x*
  where *x* is the number of logo definitions in this file.

- **ALL_LOGOS**   *x*
  where *x* is the number which indicates the screen saver should cycle through all logos (*x* must be greater than LOGOS_COUNT).

- **WHICH_LOGO**   *x*
  where *x* is the number of the logo to be displayed (number between 1 and the value of LOGOS_COUNT or ALL_LOGOS).

  Example Settings:
INTCONST	SAVER_DELAY	300
INTCONST	REFRESH_DELAY	3
INTCONST	LOGOS_COUNT	3
INTCONST	ALL_LOGS	4
INTCONST	WHICH_LOGO	ALL_LOGOS

Configuration for Administrator (Cont)

Screen Saver Logo Definitions

Each logo definition contains logo color attributes and the logo text. These are defined by the following settings:

- **LOGO_*x*_CLR**   **"FB_*FGcolor*_BGcolor"**
  where *x* is the number of the logo to be displayed (number between 1 and the value of LOGOS_COUNT) and *FGcolor* is foreground color and *BGcolor* is background color from one of the following:

  BLACK   WHITE   BLUE   GREEN   YELLOW   CYAN   MAGENTA   RED

- **LOGO_*x*_TXT**
  where *x* is the number of the logo to be displayed (number between 1 and the value of LOGOS_COUNT).

The example below shows a typically logo definition:

```
CLRATTR          LOGO_1_CLR       FB_CYAN_BLACK
MISDEF  LOGO_1_TXT
        ACTDEF  NOACT     "                                              "
        ACTDEF  NOACT     " NNN          NN  EEEEEEEEEEEEE   CCCCCCCCCCCC "
        ACTDEF  NOACT     " NNNNNN      NN  EEEE             CCCC         "
        ACTDEF  NOACT     " NNNNNNN    NN  EEEE            CCCC          "
        ACTDEF  NOACT     " NN  NNNN   NN  EEEEEEEEEE    CCCC           "
        ACTDEF  NOACT     " NN    NNNN NN  EEEE             CCCC        "
        ACTDEF  NOACT     " NN     NNNN NN  EEEE             CCCC       "
        ACTDEF  NOACT     " NN       NNNN  EEEEEEEEEEEEE   CCCCCCCCCCCC "
        ACTDEF  NOACT     "                                              "
DEFEND
```

Step 1: From the APM Main Menu, select **U** (UNIX). Locate the **logos.cfg** file and make changes as needed to this file to configure the screen saver for Student Services.

Configuration for Administrator (Cont)

Report Printing   The Student Services Administrator uses a configuration file located in the "/oai/
                             app/staCtrl/cfg" directory for report printing. The **reports.cfg** file contains the key
                             configuration variables and definitions for hardcopy reports. Report printing from
                             Student Services uses the available UNIX print device, configured for the site
                             UAP.

Report Printing Key Variables & Definitions

Key variables control the report printing and may be modified as needed.

- **STNS_LINES**   *x*

  Variable specifies the number of lines per page for the printout where x is the
  number of lines per page.

  Example:
  INTCONST   STNS_LINES   60

- **STRCONST**   **PRINT_CMD**
  "*command*"

  Specifies the UNIX print command used by the Administrator where *command*
  is the UNIX print command for the site UAP configuration.

  Example:
  STRCONST   PRINT_CMD
  "lpr -c"

- **STRCONST**   **CMD_OUT**
  "*> /dev/null 2>&1*"

  Variable specifies the destination for UNIX print command output where
  "*> /dev/null 2>&1*" is the default value to route standard output and error output
  to a null device.

  Example:
  STRCONST   CMD_OUT
  "> /dev/null 2>&1"

Configuration for StationControl

This section describes the configuration for the StationControl component of Student Services. The StationControl component is an OAI application that operates under control of the APM. The following sections describe the configuration and database requirements for the StationControl component.

Primary Parameters

This section contains the information that you should enter into the configuration file for StationControl. For specific instructions on what these parameters mean and how to make these entries, refer to the *APM Operations Manual*.

Step 3: On the **APM Configuration Entry** screen, verify installation (or make an entry if needed) for each StationControl parameter shown in the table. If the parameter is followed by an asterisks (*) in the table, you must make the entry exactly as shown.

Note: *These parameters are done automatically during installation if you answer **YES** to the autoconfig prompt.*

Parameter	Default Entry	Description
Application Name	StationControl	Specifies the name to be displayed in the APM menus. This name is displayed however it is entered here (i.e., capital letters, lower case, etc.)
Executable Filename*	/oai/app/staCtrl/bin/controller	Indicates the path and name of the executable file.
Group*	STUDENT_SERVICE	Indicates the group to which StationControl is associated.
Response Mode*	I	Indicates the action that the APM is to take with StationControl should a member of the group terminate, such as I(gnore).
Initialization Batch	N	Indicates whether or not (Yes or No) StationControl is to be initialized automatically when the OAI system is initialized.
Termination Mode*	M	Indicates how the APM is to notify StationControl to terminate (e.g., message).
Standard Output	/dev/null	Designates the file into which StationControl output is redirected.
Number of Restarts	0	Indicates how many times the APM may restart StationControl after it terminates erroneously.

Configuration for StationControl (Cont)

APM Databases   The StationControl component of Student Services uses multiple databases administered both by the APM and by the Student Services Administrator. Databases administered by the Student Services Administrator are configured at software installation and require no additional user configuration. The following database administered by the APM may require configuration.

Tenant Number Database

The Tenant Database is an APM database used by the StationControl application and other OAI applications. It provides a mechanism for retrieving the tenant number of an extension. Since the Tenant Database may be used by other OAI applications installed under the APM, it is configured using the APM and can not be modified by the Student Services Administrator program.

- **Define Master Database file name is tenant_m**

The following table defines the Tenant Number master database fields:

Field Description	Type	Size	Minimum Value	Maximum Value
First Extension	ASCII	10		
Last Extension	ASCII	10		
Tenant Number	Numeric	3	1	255

- **Specify Application Database file name is tenants**

The following table defines the Tenant Number application database:

Field Description	Data Type
First Extension	ASCII
Last Extension	ASCII
Tenant Number	Short Integer

The Tenant Number field contains the Tenant Number that is used by one or more extensions. Tenant Numbers are associated with extensions using the following methods:

- A Tenant Number may be associated with a set of extensions defined by the First and Last Extension fields. The First Extension field contains the smallest extension number in the set, and the Last Extension field contains the largest extension number in the set.

- A Tenant Number may be associated with a single extension by setting the First and Last Extension fields to the same extension value.

- A Tenant Number may be associated with a single extension that contains a non-numeric character such as '*' or '#'. The First Extension field contains the extension value, and the Last Extension field is left blank.