DATA DEFINITIONS
FOR
COLLEGES AND UNIVERSITIES
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Author

GENERAL INFORMATION

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Consortium for Higher Education Software Services
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INTRODUCTION

This second edition of *Data Definitions for Colleges and Universities* was developed by CHESS, (Consortium for Higher Education Software Services). This resource also includes the third edition of the CHESS *Taxonomy of College and University Activities*, and the first release of the CHESS *MetaData Administrator*, which is web browser-based free-license software for the creation, maintenance, and Intranet publication of the institutional information architecture. The *Data Definitions* and *Taxonomy* publications are authored by Charles R. Thomas, the author of the first edition of the NCHEMS *Data Element Dictionary* in 1971 and the first edition of the CHESS *Data Definitions for Colleges and Universities* published in CD format in 1996, as well as the original CHESS *Taxonomy of Administrative Activities for Colleges and Universities*.

GETTING STARTED

The Data Definitions distribution CD contains the Access database, the Excel Tables, the MetaData Administrator software, and the documentation files. The documentation files are in Adobe Acrobat® Portable Document Format (*.pdf), and the Adobe Reader is available at no charge from [www.adobe.com](http://www.adobe.com).

Detailed instructions for loading the database and the software to an institutional server are included in the separate *DD2_Installation_Instructions.pdf* file in the Documentation folder on the CD.

USING THIS RESOURCE

This resource is intended to provide a starting point for colleges and universities to construct or modify the institutional information architecture. As institutions acquire, design, and implement new administrative information systems (central and distributed) and build data warehouses, the CHESS *Data Definitions* will provide the definitions, codes, categories, and descriptions for many standard data elements and examples for those unique to the institution.

The CHESS *Taxonomy* provides a comprehensive list of activities as a starting point for each institution to develop a unique institutional taxonomy of activities. The MetaData Administrator software can be tailored to maintain the institutional data dictionary and taxonomy and to make the information available on the institutional Intranet. Some institutions may also use this resource to evaluate proprietary software packages to ensure they meet current and future institutional information needs.

As the information architecture of a specific institution is developed (a unique taxonomy of activities and a data dictionary), many of the required data elements will follow established standards. Even when more refined coding structures are required for operations, institutional data categories must sometimes be aggregated to standard categories for government reporting. The CHESS *Data Definitions* will save institutions thousands of hours spent searching for the existing standard definitions, as well as the many hours required to write, key, and edit all of the data element definitions and category descriptions. The structure and linking arrangement of the CHESS *Data Definitions* will also provide for the on-campus publication of the institutional information architecture on the internal network in a format accessible with standard web browsers and readable by non-technical staff.
DATA DEFINITIONS

The CHESS Data Definitions are based on a wide variety of sources with new information from other publications, government documents, industry standards, and institutional examples of the definitions and coding structures for the data maintained in administrative systems in colleges and universities. Some of the sources include:


3) The Handbook on Human Resources: Record-Keeping and Analysis published by NCHEMS in September 1994;

4) A Guide to the Implementation of the Speede/Express Electronic Transcript developed by the Committee on the Standardization of Postsecondary Education Electronic Data Exchange (SPEEDE), the American Association of Collegiate Registrars and Admissions Officers (AACRAO), the Technical Advisory Group on the Exchange of Permanent Records Electronically for Students and Schools (Express), the National Center For Education Statistics, the Council of Chief State School Officers (CSSO); and,

5) Partial data dictionaries from several universities, including the Chancellor’s Office Information Systems Data Element Dictionary from the California State University, the Data Model of the Alumni Development System from the University of Michigan, documentation from Virginia Tech University, Ohio State University, Northwestern University, the University of Colorado, the University of Illinois, and others.

The Data Definitions resource integrates data elements for six major administrative areas in colleges and universities: 1) Alumni; 2) Courses; 3) Facilities; 4) Finance; 5) Human Resources; and, 6) Students. This resource identifies over three times more data elements than the original NCHEMS Data Element Dictionary, and to the extent possible, the element identification scheme matches the original NCHEMS numbers. This referential integrity will be convenient for institutions that used earlier NCHEMS publications as a guide for data dictionary efforts.

As a convenience for institutional clients, the uses of each data element are also referenced to administrative activities identified in the CHESS Taxonomy first published in September 1994 as the CHESS Taxonomy of Administrative Activities for Colleges and Universities. The Taxonomy has been updated and the newest edition is included with the complete CHESS Data Definitions package. This Taxonomy provides a comprehensive annotated list of academic and administrative activities at a typical college or university. It also provides a detailed guide for categorizing and describing the operations of colleges and universities and the activities that relate to information technology support.

DEFINITION STANDARDS

The data element titles, codes, data categories, and definitions represent existing standards where available. Some definitions and Excel Tables of codes, categories, and descriptions were obtained over the Internet from government sites such as those of the U.S. Commerce

Department, the U.S. Department of Justice, and the National Center for Education Statistics (NCES). The *Postsecondary Education Facilities Inventory and Classification Manual* published by NCES in 1992 and the *Handbook on Human Resources: Record-Keeping and Analysis* published by NCHEMS in 1994 were valuable resources in preparation of the Facilities and Human Resources sections. Publications from the National Association of College and University Business Officers (NACUBO) and the Association of Higher Education Facilities Officers (APPA) as well as *The Guide to the Implementation of the SPEEDE/ExPRESS Electronic Transcript* developed by the Committee on the Standardization of Postsecondary Education Electronic Data Exchange (SPEEDE), the American Association of Collegiate Registrars and Admissions Officers (AACRAO) the Technical Advisory Group on the Exchange of Permanent Records Electronically for Students and Schools (EXPRESS), the National Center for Educational Statistics (NCES), and the Council of Chief State School Officers (CSSO) published in May 1994 also provided valuable information. As pointed out earlier, several institutional data element dictionaries provided the basis for examples where no clear standard was available.

**NUMBERING SCHEME**

The CHESS data element numbering scheme generally follows that established by the Second Edition of NCHEMS *Data Element Dictionary*, with the addition of a significant number of new data elements and updated codes, categories, and descriptions. The original NCHEMS *Data Element Dictionary* contained slightly fewer than 250 elements in five sections (Courses, Facilities, Finance, Staff, and Student). This CHESS *Data Definitions* contains definitions for over 780 data elements, and over 120 *Excel Tables* of codes, categories and descriptions, including an entirely new section for Alumni/Development that was not available in the 1973 NCHEMS publications. The Finance section includes new data elements required for institutional purchasing activities, and the Human Resources section includes many new data elements for recording faculty assignments and effort reporting. Also, rather than repeat codes and categories for similar data elements in different sections, those elements refer to common *Excel Tables* of codes, categories, and descriptions. When used by institutional data element dictionaries, this technique can help ensure the integrity of the information housed in distributed databases throughout the campus.

The six sections are each identified with a three-character acronym which is used both to identify the section and as a part of the data element number. The section acronyms are:

- ALM - data elements about ALUMNI and major donors;
- CRS - data elements about COURSES;
- FAC - data elements about FACILITIES;
- FIN - data elements about FINANCE; and,
- HRS - data elements about HUMAN RESOURCES;
- STU - data elements about STUDENTS and applicants;

*Data Elements* are identified with a five-digit number within a section, for example, **CRS10010** Organizational Unit Code. The data element number is simply an identifier, and where possible, the numbers in this product agree with the original NCHEMS *Data Element Dictionary* numbers. The file names for the *Excel Tables* are identified with the acronym TAB, followed by a four-
A digit number that corresponds to the first four digits of the data element first referring to the Excel Table. For example, Organizational Unit Code is Excel Table number 1001 contained in a file named TAB1001.XLS.

The original NCHEMS Data Element Dictionary also contained many elements that were simply labeled “Institutionally Defined,” with no suggested definition, codes or categories. This Data Definitions resource provides examples of codes, categories, and descriptions constructed from several college and university definitions of those elements as a guideline for institutions.

When constructing an institutional data element dictionary, these examples will be replaced by the definitions, codes, categories, and descriptions in current use locally. During this exercise many institutions will likely find multiple definitions for the same data element in use by several departments or in several different systems. This presents an opportunity to achieve agreement on a single definition or a single set of codes, categories, and descriptions. When agreement on a single institutional standard cannot be achieved, the institutional data element dictionary should list all of the different definitions and suggest limiting the number of additional different definitions for the same data element.

**EXCEL TABLES OF CODES, CATEGORIES, AND DESCRIPTIONS**

Individual Excel Tables of codes, categories, and descriptions reside in the CHESS\TABLES folder on the institutional server where the Information Architecture is maintained. These tables are maintained in *.XLS format by using Microsoft Excel®. A TableNbr is included with each data element using that specific Excel Table. To ensure proper display in the web interface, it is important that the body of the Excel Table be named with the range name of Table1 as indicated in all of the provided files.

As new Excel Tables of codes, categories, and descriptions are created it is important to place the appropriate links in the data elements that utilize those Excel Tables. It is also important that each Excel Table have an appropriate corresponding entry in the Table_Names table in the Access database as explained later in this document in the paragraphs describing the Table_Names Field Descriptions in the MetaData Administrator section.

The Source of some tables should be checked at least annually to ensure the definitions, codes, categories, and descriptions are current. A standard Access report is provided to list the Table_Names records grouped by Source to facilitate this checking.

**TAXONOMY OF COLLEGE AND UNIVERSITY ACTIVITIES**

The CHESS Taxonomy provides a comprehensive list of over 700 different academic and administrative activities at a typical college or university. It provides a guide for categorizing and describing the operations of colleges and universities and the activities that relate to information technology support. It will be useful for establishing or improving the information architecture at an institution. It can also provide a framework for an institutional data warehouse and the supporting data dictionary, as well as an information template for multi-campus institutions and agencies.

was created by merging prior efforts into a single classification structure: 1) the NCHEMS PCS; 2) the NCHEMS Taxonomy of Administrative Functions; 3) an earlier Taxonomy of Administrative Functions developed by the CCMISC (Community College MIS Consortium) in California; and, 4) the Exemplar Taxonomy of Administrative Systems. Exemplar was a nonprofit consortium of colleges and universities formed in 1993 for the purpose of collaborating and sharing “best practice” administrative applications developed with SOFTWARE AG’s advanced toolset. It has since disbanded.

NCHEMS used an earlier version of the Taxonomy to assist colleges and universities with strategic planning for information technology before it was augmented by CHESS to represent a comprehensive list of college and university academic and administrative activities. The CHESS Taxonomy closely follows the IPEDS (Integrated Postsecondary Education Data System) function of expenditure categories utilized by the U.S. Department of Education as well as by many higher education institutions and agencies.

The CHESS Taxonomy consists of five levels of hierarchy, starting with major classifications by functional area. This numbering scheme is employed for the single purpose of arranging the activities into a reasonable hierarchy. Each institution may choose any numbering structure that relates the activities to a local organizational hierarchy, but it is suggested that the original activity classification codes be maintained in the database. Once all of the administrative activities performed by an institution are identified, later local versions typically include a paragraph describing each entry in the institutional taxonomy written by institutional staff. After review and refinement, the local taxonomy should be kept up-to-date to serve as one component of the institutional information architecture, supplemented by a data dictionary.

The CHESS Taxonomy data file in Microsoft Access® format is included as a part of the Access database (Taxonomy), and the web-based MetaData Administrator software provides the capability to customize, maintain, and publish the institutional Taxonomy on the institutional Intranet.

**METADATA ADMINISTRATOR**

The MetaData Administrator software is free-license code provided as a part of the CHESS Data Definitions license. The purpose of this software is to provide easy access to the CHESS Data Definitions, the CHESS Excel Tables, and the CHESS Taxonomy, and to give institutions a starting point for building and maintaining a unique information architecture. It may be loaded onto any institutional server and accessed by any client computer in the institutional network, then modified in any way desired by the institution. It may not, however, be re-distributed to any third party, nor be incorporated into any other product for distribution, sale, or any other purpose. Since the MetaData Administrator software license is free, no maintenance, support, or updates will be provided. Institutions may modify the software in any way convenient for institutional use. If any clever techniques are discovered in this process, CHESS would like to hear about them so they may be passed along to other institutions using the resource.

**FILE FORMATS**

The Data Dictionary and Taxonomy files are recorded in the Microsoft Access® format (*.MDB), and the included web-based MetaData Administrator free-license software provides for maintenance of these files. The Excel Tables are recorded and maintained in Microsoft
Excel® format (*.XLS) directly. The dd2.mdb database contains the basic data definitions in the Elements table and the taxonomy in the Taxonomy table. Also included in the database are the Table Names table with detailed information on each of the Excel Table files, the Hierarchy table grouping the data elements by major application area, and the Logins table to provide a list of authorized administrators and passwords with update privileges. The Elements and the Taxonomy tables are maintained with the web interface by individuals authorized through the Logins table. The Table Names, Hierarchy, and Logins tables are maintained directly by the authorized administrator using the supplied Access forms, since individuals viewing the database through the web interface do not see them.

DATA DEFINITIONS FIELD DESCRIPTIONS

As each institution constructs its unique set of data definitions, the following identifying characteristics may be changed to meet local requirements or preferences. The individual fields in the initial CHESS database are described in the Elements table as follows:

**IDNumber.** Each Elements record is assigned an ID number by Microsoft Access®.

**InstnNumber.** This field is initially identical to the CHESSNumber, but during the implementation process each institution may assign its own unique data element number. The MetaData Administrator software indexes the files on this number.

**CHESSNumber.** The reference number for each element begins with a three-character abbreviation for the section of the data dictionary and a five-digit reference number. The first four digits of these numbers are consistent with the 1973 edition of the NCHEMS Data Element Dictionary (where possible) for elements in common with that publication and with the 1996 edition of the CHESS Data Definitions. Sub-groups, or blocks of data elements are also numbered in sequence when appropriate, and identified in the Comment field. Institutional data dictionaries may use the same group designations, or may identify different group identifiers as appropriate for institutional situations. The CHESSNumber number should be retained in the institutional data dictionary for retrospective reference to the original database.

**Hierarchy.** This field is a group code related to the InstnNumber field. It is an integer assigned to each group of data elements to improve database access speed. It is automatically generated in each record in the database, and the initial codes are as follows:

- 0 (ALMxxxxx) Alumni element
- 1 (CRSxxxxx) Course elements
- 2 (FACxxxxx) Facility elements
- 3 (FINxxxxx) Finance elements
- 4 (HRSxxxxx) Human Resource elements
- 5 (STUxxxxx) Student elements

If the group codes (the first three characters of the InstnNumber field) are modified, or new groups are added, the Hierarchy table in the database must be modified appropriately, and the individual element records must reflect that code. No separate web capability is provided for modifying this table, but it can be easily changed using the appropriate Access form, then as elements are modified the Hierarchy code must be kept consistent in the Elements table in the Access database. If a new Hierarchy code is added, a first Element must be added to the database using the Access Elements form. Once a single Element record exists for a new Hierarchy code, additional Element records may be added using the web interface.
Title. Each data element has a complete descriptive title in text to a maximum size of 70 characters.

Abbrev. A short name of 25 characters or less for each element is suggested. The abbreviations in this short name are joined by the underscore character as required by many programming languages and database systems.

Format. Text format is indicated for alphanumeric data. Numeric formats include a display mask common to most programming languages and database systems. The format field may be as long as 70 characters.

Size. The number of characters required to store the data element electronically. For numeric elements this size does not include dashes, dollar signs, and other display characters included in the mask.

EntryDate. The last date of entry is maintained in this field. The original entry date is identical for all of the Data Definitions, and should be replaced as changes are made. The date is entered in the form mm/dd/yyyy.

EntryBy. The initials or up to a ten character name of the individual administrator making the last change to the data element is maintained in this field. The original “EntryBy” initials are identical for all of the Data Definitions.

Definition. This memo field includes one or more text paragraphs describing the data element.

Comment. This memo field includes additional information about the data element where necessary for clarity. Where several data elements constitute a block or a sub-block of data describing a specific entity they are identified in this field. Blocks or sub-blocks that may occur multiple times for a specific entity are also identified here.

TableNbr. This field contains the four-digit number of an Excel Table of codes, categories, and descriptions for data elements that require one. In general, it corresponds to the first four digits of the data element first referring to the Excel Table, but this is not a requirement. To preserve referential integrity, a table number entered in the web maintenance EDIT mode must first appear in the Table_Names table.

TableName. This field is automatically filled in from the Table_Names table maintained in the database separately from the Data Elements.

ActivityCode1 through ActivityCode7. Space for seven activity codes is provided to link each Data Element to the appropriate activities in the Taxonomy section of the Information Architecture.

ActivityName1 through ActivityName7. These fields are not present in the Elements table, but are automatically generated on displays from the Taxonomy table based on the corresponding ActivityCode.

Internal Data Source. The institutional department primarily responsible for the maintenance of this data element. For example, the institutional admissions department is generally responsible for maintaining Admissions Status in the Student Records files.

External Data Source. Some data elements are acquired from or mandated by an agency external to the institution. For example Citizenship-Visa Type is typically maintained by the
admissions department or the registrar, but is acquired from the U.S. Citizenship and Immigration Service.

**LinkCode1 through LinkCode5.** The identification number for other data elements to which a particular data element is linked. Examples are FIN30120 Account Code for most financial transaction elements, and HRS40020 Personnel Identification Number for human resources data.

**LinkName1 through LinkName5.** These fields are not present in the *Elements* table, but are automatically generated on displays from the appropriate data element titles in the *Elements* table.

**DefnSrc.** The source of a definition. Where any external standard definition is available or mandated, it appears in this data element. Where “Institution” is listed as the definition source, definitions from several colleges and universities have been edited to a single example. Where clear standard definitions were available, the source of the definition is listed.

**TAXONOMY FIELD DESCRIPTIONS**

As each institution constructs its unique taxonomy, the following identifying characteristics may be changed to meet local requirements or preferences. The individual fields in the starting *Taxonomy* table are described as follows:

**ID.** Each *Taxonomy* record is assigned an ID number by Microsoft Access®.

**Instn-Activity-Code.** This field is initially identical to the *CHESS-Activity-Code*, but during the implementation process each institution will assign its own unique number. The *MetaData Administrator* software indexes the files on this number.

**CHESS-Activity-Code.** The codes in this field are based on a number of sources described earlier in this document. This code should be retained in the institutional taxonomy for retrospective reference to the original database.

**Activity-Name.** The official name of the activity. The initial entry in this field should be replaced with institutional information during the implementation process.

**Activity-Description.** A short description of the activity. The initial entry in this field should be replaced with institutional information during the implementation process.

**Responsible-Dept.** The department primarily responsible for a specific activity. The initial entry in this field should be replaced with institutional information during the implementation process.

**CIP-Code.** The appropriate code from the *Classification of Instructional Programs* published by the National Center for Education Statistics (NCES). This code is required for IPEDS (Institutional Postsecondary Education Data Survey) reporting.

**Date-Last-Changed.** The last date of change is maintained in this field. The original date is identical for all of the *Taxonomy* records, and should be replaced as changes are made. The date is entered in the form mm/dd/yyyy.

**Changed-By.** The initials or up to a ten character name of the individual making the last change to the *Taxonomy* record is maintained in this field. The original “Changed-By” initials are identical for all of the *Taxonomy* records.
TABLE_NAMES FIELD DESCRIPTIONS

The Table Names table in the Access database provides detailed information on each of the Excel Table files containing the codes, categories, and descriptions. Each new Excel Table of codes, categories, and descriptions added to the system must contain an entry in this Access table. In the current version, no referential integrity checking is performed, but a missing entry will be flagged if it is referenced during editing in the web interface. The fields in this file are:

**ID.** Each Table_Name record is assigned an ID number by Microsoft Access®.

**TableNbr.** This field contains the four-digit number of an Excel Table of codes, categories, and descriptions for data elements that require one. It corresponds to the first four digits of the data element first referring to the Excel Table.

**TableName.** This field contains the name of the Excel Table, and should be consistent with the name listed in the corresponding Excel Table file. In the initial database, if no source was found to provide a standard of any kind for the codes, categories, and descriptions, the word “Example” is included with the TableName.

**TableFileName.** This field contains the Excel Table file name for the table of codes, categories, and descriptions, typically TABnnnn.xls as a convention.

**Source Abbreviation.** This field contains an abbreviation for the source of the codes, categories, and descriptions in the Excel Table. In general abbreviations for the same source should be kept consistent.

**Source.** This field contains the full name of the source organization for the codes, categories, and descriptions. Institution is listed as the source for codes, categories, and descriptions and example sets are provided in the initial database. These examples were created from the unique institutional data dictionaries of several universities and colleges.

HIERARCHY FIELD DESCRIPTIONS

The Hierarchy table in the Access database provides a separate numeric designator for each of the major data element groups. The purpose of this table is simply to increase the speed of database searching by the web engine. The fields in this table are:

**ID.** Each Hierarchy record is assigned an ID number by Microsoft Access®. This is the number used by the web interface to speed searching.

**CategoryName.** This field contains the name of the data element group.

**Abbrev.** This field contains the three-character designator for a data element group. Initial designators are: ALM for Alumni, CRS for courses, FAC for facilities, FIN for finance, HRS for human resources, and STU for students. Additional categories may be added through special procedures using the Access forms as explained earlier in the Data Definitions Field Descriptions section of this documentation.

LOGINS FIELD DESCRIPTIONS

The Logins table in the Access database provides an entry for each person with update privileges for the Data Definitions and Taxonomy files. The initial table contains two entries with default data, which should be changed during implementation. The fields in this file are:
Data Definitions for Colleges and Universities  

*admin_id.* Each *Logins* record is assigned an ID number by Microsoft Access®. The initial default number for the primary entry is 1.

*admin_username.* This field contains the username for login purposes. The initial default name for the primary entry is *admin*.

*admin_password.* This field contains the password for login purposes. The initial default password for the primary entry is *adminpass*.

*admin_name.* This field contains the full name of the person assigned the *admin_username* and *admin_password*. The initial default entry for the primary entry is *Administrator*.

**OPTIONS DESCRIPTIONS**

The *Options* table in the Access database provides the administrator with color and logo options for the web screens and frames. The table contains two entries for color, one for the dark color and one for the light color. The default colors are. The fields in this file are:

*option_id.* Each *Options* record is assigned an ID number by Microsoft Access®. The initial default number for the primary entry is 1.

*color_dark.* This field contains the standard html color number for the dark portions of the DD2 browser. The initial default color number for the primary entry is #64000, which is a dark brown.

*color_light.* This field contains the standard html color number for the light portions of the DD2 browser. The initial default color number for the primary entry is #C0A0A0, which is a light tan.

*header_img.* This field contains the file name of the main data dictionary logo. The initial default entry for the main logo is *top_logo.gif*.

*content_title_img.* This field contains the file name of the secondary data dictionary logo. The initial default entry for the main logo is *chess_logo.gif*.

A *Restore Defaults* button is provided to restore the original options if the Administrator happens to forget the original values during the installation process.
SYSTEM REQUIREMENTS
Most institutions will place the CHESS Data Definitions database and the MetaData Administrator software on an existing server with adequate capacity, however the following hardware and software specifications are recommended.

SERVER HARDWARE AND SOFTWARE
The minimum hardware system requirements for hosting the CHESS database and the MetaData Administrator are reasonably standard. The processor should be at least a 450 megahertz (Mhz) Pentium-II, and a 600-Mhz Pentium III or better is recommended. 256 megabytes (MB) of RAM memory is required, and 512 MB is recommended. At least 20 megabytes of hard disk space is required. Also, a CD-ROM or DVD-ROM drive is required. To operate on the campus Intranet, a Network Interface Card (NIC) and a static IP address are required.

The server operating system should be Microsoft Windows 2000 Professional (SP3 or later) with the Microsoft Internet Information Services (IIS) version 5 or better installed with the Microsoft Management Console (MMC) and World Wide Service components. Version 5.1 of the IIS software is recommended. Microsoft Windows XP Professional with IIS installed or Microsoft Windows Server 2003 is recommended. The server should also have Microsoft Access 2000 and Microsoft Excel 2000 installed.

WORKSTATION HARDWARE AND SOFTWARE
Any networked PC or Mac that includes web browser software capable of handling FRAMES can be used to access the data dictionary and the taxonomy for viewing. Microsoft Internet Explorer 2.0 or later and Netscape 3.0 or later are required to handle FRAMES. The system uses pop-up frames, so any “popup stopper” software must be disabled for proper operation. Microsoft Excel is required to maintain the Excel Tables, and Microsoft Access is required to maintain some of the logistical tables in the database, but they are not required for viewing the database on a workstation.

APPLICATION DOCUMENTATION
The CHESS Data Definitions for Colleges and Universities database is maintained in a Microsoft Access database (dd2.mdb), and the tables of codes, categories, and descriptions are maintained in Microsoft Excel (*.xls) format in a special folder on the institutional server.

The initial screen displays the following formats, then several buttons are displayed to link to the other functions.
Web Data Dictionary Opening Screen
The following paragraphs explain the various screens with examples using the data element 
STU50060 Citizenship Status with its associated Links, Activities, and Table #4006.

**VIEWER MODE**

A web browser capable of handling FRAMES is the only software required to view both the  
Data Elements and the Taxonomy on the institutional intranet. The tables of codes, categories,  
and descriptions automatically appear in a frame at the bottom of each data element referring to a specific table, so no other special software is needed in viewer mode.

**Data Dictionary Elements**

The basic entry to the system is through the web display of data dictionary elements. This display includes the ability to search for a specific element containing any text string. When a specific element is displayed, the information from any associated table of codes, categories, and descriptions is displayed in a frame titled “Field Values” at the bottom of the screen.

**Web Data Dictionary Frame**
**Data Dictionary Links**

While viewing the data element, the **Links** button will bring up a separate frame for viewing the associated links to other data elements. This frame overlays the basic display, and may be moved around the screen.

*Web Data Dictionary Frame with Links Viewer*
Data Dictionary Activities

The Activities button will bring up a separate frame showing the activities that utilize this data element. These activities are those listed in the Taxonomy of College and University Activities included in the Taxonomy table in database. Like the Links frame, the Activities frame may be moved about on the screen. A View button to the right of each Activity on this frame will also allow the viewer to bounce to the Taxonomy to view the details about a specific activity.
Taxonomy

The *Taxonomy of College and University Activities* may be viewed separately by clicking on the Taxonomy button on the basic data dictionary display. This viewer also includes the capability to search for text strings.

Web Taxonomy Frame
ADMINISTRATOR MODE

When the LogIn button is activated, a frame requests the Administrator to log in with a password. As this frame indicates, “session cookies” must be enabled for the system to function properly.

The table of passwords is maintained in the database with Microsoft Access® through the LOGINS FORM that may contain any number of admin_usernames, admin_passwords, and admin_names. This function should be restricted to the Administrator. Upon installation one or more new Administrator entries should be established and the two default Administrators removed, or the two default passwords changed, to prevent unauthorized access through these accounts.
Customization

After the Administrator is logged in, a button for Options appears. This button will allow the Administrator to replace the default colors on the web interface with other standard HTML colors and to specify different logos. Most institutions know the appropriate HTML color number for their school colors, so may choose to use those, otherwise, there are many charts of HTML Colors available on the Internet; two examples are:

http://www.ctyme.com/colors.htm and
http://www.w3schools.com/html/html_colornames.asp

Logos

The CHESS logos that come with the MetaData Administrator are contained in two files that may be replaced with institutional logos. Care should be taken to ensure that any replacement logos are of an appropriate size and have the appropriate matching colors. The two logos provided are the top_logo.gif, which is known as the “Header image,”

Web top_logo.gif (392 x 46 pixels)

and the chess_logo.gif, which is known as the “Content title image”.

Web chess_logo.gif (300 x 85 pixels)
Colors

The dark default color is HTML Color #640000 (dark brown), and the default light color is HTML #C0A0A0 (light tan). A limited set of primary colors can be selected from the palette provided, or more detailed standard HTML color numbers may be entered in the Options frame shown below. A **Restore Defaults** button is provided for setting all the options to the original values.

![Web Options Frame](image)

The **Color Choice** buttons will enable a frame with several primary color options for either the Dark Color or the Light Color choices.

![Web Color Frame](image)
Microsoft Access Customization

In addition to the web Options frame, a Microsoft Access® Form may also be used by the Administrator to change these values. This form does not include the Color Choice option present in the Web Options frame, so colors must be chosen strictly by the HTML color numbers. The Microsoft Access Options Form also does not include a Restore Defaults capability.

Microsoft Access Options Form

Editing

After logging in as an Administrator, additional buttons appear on the Data Dictionary screen for maintenance. These buttons are used for editing different parts of the database.
Editing Data Elements

The primary editing frame appears when the Edit button is clicked. This frame overlays the basic Data Element display and is used for editing and updating most of the information in the Elements table.

Web Data Element Edit Frame
Editing Links

When in Administrator mode on a specific data element, the Links button will bring up a frame for viewing the LinkCode(s). This frame overlays the basic Data Element display and shows the InstnNumber and LinkTitle for up to five linking elements as well as an Edit button.

Web View Links Frame

<table>
<thead>
<tr>
<th>Link</th>
<th>Instn #:</th>
<th>Title:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Link 1</td>
<td>STU50020</td>
<td>Student Identification Number</td>
</tr>
<tr>
<td>Link 2</td>
<td>STU50030</td>
<td>Social Security Number</td>
</tr>
<tr>
<td>Link 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Link 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Link 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Clicking on the Edit button will bring up the Edit Links frame. The Administrator enters InstnNumber(s) for the linking Element(s) in this frame, then the system will enter the corresponding Title(s). After clicking on the Update button the system will return to the View Links display so the titles of the linking elements may be verified.

Web Edit Links Frame

<table>
<thead>
<tr>
<th>Link</th>
<th>Instn #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Link 1</td>
<td>STU50020</td>
</tr>
<tr>
<td>Link 2</td>
<td>STU50030</td>
</tr>
<tr>
<td>Link 3</td>
<td></td>
</tr>
<tr>
<td>Link 4</td>
<td></td>
</tr>
<tr>
<td>Link 5</td>
<td></td>
</tr>
</tbody>
</table>

After clicking on the Update button the system will return to the View Links frame so the titles of the activities may be verified. If an erroneous InstnNumber is entered, a red error message will display. Closing the frame with the error message will return to the View Links frame without making changes.
Editing Activities

Similar frames will appear for the Activities button in Administrator mode.

Web View Activities Frame

As with Links, the Administrator clicks on the Edit button and enters the Instn-Activity-Code, later the system will enter the corresponding Activity-Name. After clicking on the Update button the system will return to the View Activities display so the titles of the activities may be verified.

Web Edit Activities Frame

If an erroneous Activity-Code is entered, a red error message will display. Closing the frame with the error message will return to the View Activities frame.
Editing the Taxonomy

The Taxonomy of Activities is a separate table in the database that is linked to the Elements table through the Instn-Activity-Code. Up to seven Instn-Activity-Codes may appear in a specific Data Element. If an Activity is deleted from this table no integrity checks are performed to list the Data Elements referring to this Activity, so the Administrator should make this check independently to avoid later error displays in the Data Dictionary.

The Taxonomy button will bring up a screen for editing Activities listed in the Taxonomy:

Web Taxonomy Edit Frame
Editing Excel Tables

The Excel Tables are edited or created directly using Microsoft Excel®. Care must be taken to create the Table1 range properly as shown on the following example. This range name is used to display the table information properly on the web screen for the data elements.

Excel Table Example

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>TABLE 4006 Citizenship Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Source: SPEEDE Data Element 4006 &amp; Institutional Postsecondary Education Data System (IPEDS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Copyright © 1996, 2004 CHESS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Code</td>
<td>Category</td>
<td>Description</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>United States Citizen</td>
<td>A person born in the United States or a naturalized citizen</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>Non-Resident Alien</td>
<td>A person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>Resident Alien</td>
<td>Non-citizens who have been lawfully admitted to the United States for permanent residence and who hold a &quot;green card&quot;</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>Illegal Alien</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>5</td>
<td>Alien</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>6</td>
<td>United States Citizen - Non-Resident</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>7</td>
<td>United States Citizen - Resident</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>8</td>
<td>Citizen</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>9</td>
<td>Non-citizen with Student Authorization</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>A</td>
<td>Non-permanent Resident Alien</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>B</td>
<td>Permanent Visa</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>C</td>
<td>Temporary Visa</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>C</td>
<td>Dual Citizenship</td>
<td>An individual who is a citizen of one or more countries in addition to the United States.</td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Access Forms

Since the Data Definitions are provided in Microsoft Access® format, Access forms are provided for all of the tables. Several of these forms must be used by the Administrator to maintain control over the system, and others duplicate the web-based interface. For example, the Hierarchy, Logins, and Table_Names tables must be maintained using the supplied Access forms.

**Special Note:** In the rare case of the establishment of a new Hierarchy code, the Access Data Element Form must be used to enter a first Data Element. This is because the Hierarchy code is automatically generated by the web-based interface for new Elements, and the database must contain at least one Data Element for each Hierarchy Code to function properly.

The Access forms for Logins and Options were shown earlier in this documentation. Here are the other Access forms.

Elements Access Form
Hierarchy Access Form

Table Names Access Form
IMPLEMENTATION

The distribution CD contains a separate file named *DD2_Installation_Instructions.pdf* in the **Documentation** folder with detailed instructions for loading the MetaData Administrator software and the initial database and tables on an institutional server and making it available on the Intranet. Once this is done from the distribution CD the system can be customized and effort started on construction the institutional Information Architecture.

CUSTOMIZATION

The first customization task is to set up one or more local administrators who will have Login privileges for maintaining the institutional Taxonomy and Data Dictionary files in the database. As indicated earlier in this document in the section titled **ADMINISTRATOR MODE**, this is accomplished by changing the **Login** table using the **Login** table in Microsoft Access®. The initial username is **admin** and the initial password is **adminpass**. These should be changed immediately to secure the database.

The second customization task is to set the colors, unless the default colors just happen to be the school colors. This can be done by logging in as an Administrator and choosing the **Options** button on the initial web screen. This same screen can be used to replace the initial CHESS logos with institutional logos. As pointed out earlier, take care to ensure that the replacement logos will fit in the spaces.

Once the customization tasks are complete the system is ready for use.
TAXONOMY

The initial taxonomy of over 700 activities is only a starting point to construct an institutional taxonomy of activities. It is organized roughly by the coding structures used by the National Center for Education Statistics (NCES) in their Institutional Postsecondary Education Data System (IPEDS).

An administrative systems advisory committee or another similar campus group can make a first pass by eliminating those activities on the list that clearly are not performed at the institution and adding any activities that are not on the list. After all institutional activities are identified and placed in the Taxonomy; the department that performs that activity can be added to the database. At most institutions, this process is at least as valuable as the result. Institutions will discover that several departments are performing the same, or similar, activities. At this point discussions can be held as to which department or departments should be responsible for which activities. In some cases activities that are not on the list will be added to the database.

The next task is to provide succinct descriptions of each activity. The Institutional Taxonomy of Activities is a dynamic list, changing as activities are added or dropped.

DATA DICTIONARY

The initial CHESS Data Definitions database includes over 780 data elements and over 120 tables of codes, categories, and descriptions. This database includes standards from a variety of sources for about 40% of the Data Elements and 65% of the Tables. Where no standards were available, examples are provided that are based on the data dictionaries of several universities and colleges. Like the Taxonomy of Activities, the Data Definitions represents a dynamic database that should be kept up-to-date. The initial definitions and tables should be replaced with those in use at the institution. It is important that an unbiased forum for agreement, such as an administrative systems advisory committee, or similar institution-wide group should serve as the forum for agreement.
FEEDBACK

This CHESS \textit{Data Definitions} product is intended to provide a starting set of descriptive information for administrative systems in colleges and universities and a basic set of web-based software to maintain an institutional \textit{Taxonomy of Activities} and \textit{Data Dictionary}. The list of data elements, the definitions, and the \textit{Excel Tables} of codes, categories and descriptions incorporate existing standards where available, and are as complete as possible. As colleges and universities build institutional data dictionaries for administrative applications, data warehouses, and planning and management databases, the data contained in the CHESS \textit{Data Definitions} may be modified and maintained with the included web-based software, or imported into local systems in any way that will be beneficial in constructing and maintaining the institution’s information architecture.

As with any effort of this type, institutional use will uncover details that could be more useful, new data elements will be required by institutional practices and government agencies, and existing standards will change over time. CHESS will appreciate suggestions, corrections, and general feedback both on the product format and on the details contained in the product. This feedback will allow improvement of the product for future editions. Suggestions and comments may be sent to CHESS or to NCHEMS through any medium, telephone, FAX, or electronic mail.
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