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Classified Computer Configuration Control System (C⁴S), Revision 3, Database Administrator's Guide

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1.0 INTRODUCTION

This document provides a guide for database administration and specific information for the Classified Computer Configuration Control System (C²S). As a guide, this document discusses required database administration functions for the set up of database tables and for users of the system. It is assumed that general and user information has been obtained from the *Classified Computer Configuration Control System (C²S), Revision 3, User's Information* (WHC 1994). The authors of the program are P. B. O'Callaghan, A. J. Grambihler, and R. A. Nelson.

2.0 INSTALLATION

Installation procedures will be determined by local area network hardware and software. Specific procedures for installation will be developed as required.

3.0 ADMIN COMMAND

After completing the "Log In" process for this component as described in the user guide, the Database Administrator (DBA) will select ALT/A or click on "Admin" from the main menu. This will bring up the selection pull down menu for "Admin" (see Figure 1). The menu consists of 9 functions. The first, "Supporting Tables" is the most used function for the DBA. The other functions allow the creation, encryption, and decryption of the database, which might only occur once during the creation of the system.

3.1 SUPPORTING TABLES

Activating the supporting tables command allows the DBA to add, update, or delete user(s) from the system. The DBA has the ability to grant access to information by facility, as well as general access to the entire database. This command can be used to allow a large population of personnel to observe the information, while keeping the number of people that can modify the information controlled. An example of the initial window brought up for this command is presented in Figure 2.

3.1.1 User Functions

3.1.1.1 Add User. Assuming that the DBA wants to add a user to the system, it would be accomplished in the following manner:

While in the initial window for "Supporting Tables" (labeled "Table") select the "Users" table, followed by selecting "Process." This will bring up the "Edit Users" window (see Figure 3). This

Figure 1. Admin Pull Down Menu.

<div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; margin-bottom: 10px;"> ■ Security Edit Report Admin Options Help Exit 12:31:56 </div> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 60%;"> <div style="border-bottom: 1px solid black; padding: 2px 5px;">Supporting Tables</div> <div style="padding: 2px 5px;"> Create Current Tables Create Current Indexes Decrypt Current Tables Encrypt Current Tables </div> <div style="padding: 2px 5px;"> Create Archive Tables Create Archive Indexes Decrypt Archive Tables Encrypt Archive Tables </div> </div>	
F1 Help ALT-X Exit C4S Admin	97072

Figure 2. Modify User Access.

<div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; margin-bottom: 10px;"> ■ Security Edit Report Admin Options Help Exit 12:31:56 </div> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"> <div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; margin-bottom: 10px;"> [■] Select Table Table </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <div style="border-bottom: 1px solid black; height: 20px; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; height: 100px; position: relative;"> <div style="position: absolute; top: 5px; left: 5px;">FacId</div> <div style="position: absolute; top: 25px; left: 5px;">Users</div> <div style="position: absolute; top: 45px; left: 5px;">UsersFac</div> <div style="position: absolute; right: 5px; top: 50px; text-align: center;"> ▲ ▼ </div> </div> </div> </div> <div style="display: flex; justify-content: flex-end; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">Process</div> <div style="border: 1px solid black; padding: 2px 5px;">Done</div> <div style="border: 1px solid black; padding: 2px 5px;">Help</div> </div>

Figure 3. Edit Users.

■ Security Edit Report Admin Options Help Exit 12:31:56

[*] Edit Users

Select Users

AN_USERNETNAM
IM_USERNETNAM
WE_NAMEIT

New
Update
Delete
Browse
Retrieve
Done
Help

F1 Help ALY-X C4S Admin 97072

window will list all current users in the manner the users are addressed in the local area network (Login Name). The DBA now has the ability to select an existing user to update information or delete the user from the system. Our task is to add a user to the system, so the next step is to select "New."

When selected, the "New Users" window (see Figure 4) will pop up on top of the other screens. The DBA then selects the person's name and enters a field that ends with an "^" by pressing the "Insert" key or double clicking the mouse on the field. This brings up the "Select Person Identification" window (see Figure 5). If the person that is to be entered as a user is already on the list then select the name and "Process." More than likely the person being added to the system has not been identified to the system before. In this case select "New" to bring up the "New Person Identification" window (see Figure 6). The first field on the "New Person Identification" window is "Facility^." The DBA enters this field and is presented with the "Select Facility Identification" window (see Figure 7). In most cases the facility will already be on the list. The DBA will be able to select the facility the new user works at, and select "Process." If on the other hand the desired facility is not listed, the DBA can select "New," and enter the "New Facility Identification" window (see Figure 8). The information for the new facility identification is found on the Safeguards and Security Information Management System (SSIMS). The computer system is operated by SA-131 the Policy,

Figure 4. New Users.

■ Security Edit Report Admin Options Help Exit 12:31:56

[=] New Users

Person Name^

Login Name:

Login Password:

Verify Password:

Expiration Date:

Database Password:

Global Access

- [] DBA
- [] New
- [] Update
- [] Delete
- [] Browse
- [] Retrieve

Ok

Cancel

Help

F1 Help ALT-X Exit C4S Admin 97072

Figure 5. Select Person Identification.

■ Security Edit Report Admin Options Help Exit 12:31:56

[=] Select Person Identification

Select Person Identification

New

Process

Done

Help

F1 Help ALT-X Exit C4S Admin 97072

Figure 6. New Person Identification.

■ Security Edit Report Admin Options Help Exit 12:31:56

[=] New Person Identification

Facility^

Number:

Last:

First:

Middle:

Phone:

MSIN:

Ok Cancel Help

F1 Help ALT-X Exit C4S Admin 97072

Figure 7. Select Facility Identification.

■ Security Edit Report Admin Options Help Exit 12:31:56

[=] Select Facility Identification

Select Facility Identification

0070-PNL:
0098-BCSR:
0476-DOE:
0620-WHC:
0666-JAJ:
0808-HEHF:
0877-KEH:

New Process Done Help

F1 Help ALT-X Exit C4S Admin 97072

Figure 8. New Facility Identification.

■ Security Edit Report Admin Options Help Exit 12:31:56

[=] New Facility Identification

DOE Code:

DOE Office:

DOE Area:

Contractor Abbrev:

Contractor Name:

Report Heading:

Address 1:

Address 2:

City:

State:

Zip Code:

Ok

Cancel

Help

F1 Help ALT-X Exit C4S Admin 97072

Standards and Analysis Division of the Office of Safeguards and Security at DOE Headquarters in Germantown (Phone: [301] 903-5123). The "DOE Code" is obtained from SSIMS. The code needs to be four ASCII characters, so the DBA must place leading zeros, as needed to obtain four characters. The "DOE Office" is obtained from SSIMS and the "DOE Area" is also obtained from SSIMS if applicable. The contractor "Abbreviation" is locally generated, and must be unique in the database. The contractor "Name" is the contractor, or if more appropriate the "Facility Name" as found on SSIMS. The "Report Heading" is the heading for the facility that is desired to appear on all pertaining reports. "Address 1" is the first line of the address. "Address 2" is the second line of the address, or blank if there is none. "City" is the city part of the address. "State" is the abbreviation for the state in which the facility is located. "Zip Code" is the postal code part of the address. Once the appropriate information is entered, selecting the "OK" icon will save the information. "Cancel" will close the window without saving the information.

After selecting "OK" the window closes, and the DBA is returned to the "Select Facility Identification" window (see Figure 7). The DBA must now select the "Process" icon to get the newly assigned facility code placed into the "Facility" field of the "New Person Identification" window (see Figure 6). The DBA then enters the payroll number or some other unique

number if there is no payroll number, for example: yymmddiii (year, month, day, user's initials) and then the last name, first name, and middle name. If the DBA chooses, the middle name can be left blank, or only an initial. The last two fields are the users phone number and internal mail stop. Once all the pertinent information is entered, the DBA selects "OK" and the window closes and then the "Select Person Identification" window becomes current (see Figure 5). The new user is already selected, so the DBA selects the "Process" icon which adds the new user to the "Person Name^" field of the "New Users" window (see Figure 4). The DBA then enters the users name as it is defined in the local area network into the "Login Name" field. The DBA then enters the "Login Password" and repeats the action in the field called "Verify Password." The two passwords need to be identical. The system gives only an "*" for feedback on the password windows when entering data. For this reason, the password is required twice. The "Expiration Date" can be entered, however it is currently not checked by the system. The database password is a common password for all users to have access to the database. It allows the database to be stored in an encrypted manner. This field also has an "*" for feedback. If the database password is not entered correctly information will not be accessible to the user. Global access is set/reset by clicking on the window with the mouse or tabbing to "Global Access," positioning with the up/down arrows and pressing the space bar to set/reset the selection. The DBA gives all access to the system. The "New" window allows the user to create new systems. "Update" allows the user to modify existing records. "Delete" allows the user to delete existing records. "Browse" allows the user to view information. "Retrieve" allows the user to retrieve information from the archive. Clicking on "Ok" completes the creation of the new user. The system returns to the "Edit Users" window once this is complete (see Figure 3). The DBA can confirm the new user is now on the list of users. Other new users can be added at this point.

3.1.1.2 Update User. From the "Edit Users" window (see Figure 3), selecting "Update" after selecting the desired user will bring up the updated users window (see Figure 9). The window has the same fields as the "New Users" window (see Figure 4). The user record can be modified as desired. Remember if the login password is changed the verify password must also be changed in an identical manner.

3.1.1.3 Delete User. From the "Edit Users" window selecting "Delete" after selecting the desired user will cause the record to be deleted from the current database and placed into the archive database (see Figure 3). The DBA must be careful to remove all references to the user before the user is deleted from this table.

3.1.1.4 Browse User. From the "Edit Users" window (see Figure 3) selecting "Browse" after selecting the desired user will cause the "Browse Users" window to appear (see Figure 10). None of the fields can be modified, but they contain current information. The window has a "Next" icon to allow the DBA to look at the next user on the list. The "Prev" icon allows movement to a previous user on the list. When the beginning or end of the list is reached, the program beeps if it is asked to go beyond the bounds of the list.

Figure 9. Update Users.

■ Security Edit Report Admin Options Help Exit
12:31:56

[=]
Update Users

Person Name^

Login Name:

Login Password:

Verify Password:

Expiration Date:

Database Password:

Global Access

- ☐ DBA
- ☐ New
- ☐ Update
- ☐ Delete
- ☐ Browse
- ☐ Retrieve

F1 Help ALT-X Exit C4S Admin
97072

Figure 10. Browse Users.

■ Security Edit Report Admin Options Help Exit
12:31:56

[=]
Browse Users

Person Name^

Login Name:

Expiration Date:

Global Access

- ☐ DBA
- ☐ New
- ☐ Update
- ☐ Delete
- ☐ Browse
- ☐ Retrieve

F1 Help ALT-X Exit C4S Admin
97072

3.1.1.5 Retrieve User. From the "Edit Users" window (see Figure 3), selecting "Retrieve" after selecting the desired user will allow the DBA to "Browse," "Restore," "Cancel," or get "Help" (see Figure 11). A user can be restored by selecting the "User" icon followed by selecting the "Restore" icon.

Figure 11. Restore Users.

3.1.2 User Facility Functions

3.1.2.1 Add User Facility Association. From the "Table" window (see Figure 2) select the "UsersFac" table, then select the "Process" icon to assign the new user to a specific facility, or group of facilities. The "Edit User Facilities" window will then pop up (see Figure 12). This is the same window that must be reached to "Update," "Delete," "Browse," or "Retrieve" information concerning associations of users to specific facilities.

Because of interest in completing the addition of the new user the selection of the "New" icon will allow DBAs to make new associations with specific facilities to the user.

Figure 12. Edit User Facilities.

■ Security Edit Report Admin Options Help Exit 12:31:56	
<div style="border: 1px solid black; padding: 5px;"> <div style="display: flex; justify-content: space-between; align-items: center;"> [=] Edit User Facilities </div> <div style="display: flex;"> <div style="flex: 1;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Select UsersFac</div> <div style="border: 1px solid black; padding: 5px; min-height: 150px;"> <div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div> AN_USERNETNAM:0070-PNL: IM_USERNETNAM:0620-WHC: WE_NAMEIT:0808-HEHF: </div> </div> </div> <div style="flex: 0.2; text-align: center; border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;"> ▲ ▼ </div> <div style="flex: 0.2; padding-left: 5px;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">New</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Update</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Delete</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Browse</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Retrieve</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Done</div> <div style="border: 1px solid black; padding: 2px;">Help</div> </div> </div> </div>	
<div style="display: flex; justify-content: space-between;"> F1 Help ALT-X Exit C4S Admin 97072 </div>	

When the program presents the "New User Facilities" window (see Figure 13). The DBA must select a "Facility^" by pressing the insert key on the keyboard or double clicking on the field in dark blue. This action will bring up the "Select Facility Identification" window. The completion activities are described above (see Figure 7). After selecting the facility, the DBA then moves to the "User Id^" field. This field also has an "^" indicated. So the DBA must double click, or press insert on the keyboard to be able to view the selections of possible users.

These actions will bring up the "Select Users" window (see Figure 14). Because of the previous activity to enter the new user, the user should appear in the list. The DBA can select the user and double click, or select "Process." At this point a new user could be added by selecting "New." This action will bring up the "New Users" window and the new user would be added in the manner described previously (see Figure 4). If the DBA finds this a better method for entering new users because they will be associated with a facility, that is acceptable.

Once the user selection/creation process is complete, the DBA is returned to "New User Facilities" (see Figure 13). At this stage both the facility and the user identification have been selected. The DBA is now ready to select the "Facility Access" to be granted to the user. The meaning of the possible access authorizations is the same as those for "Global Access" which was discussed earlier.

Figure 13. New User Facilities.

■ Security Edit Report Admin Options Help Exit
12:31:56

[■]
New User Facilities

Facility^
User Id^

Ok

Cancel

Help

Facility Access
[] DBA
[] New
[] Update
[] Delete
[] Browse
[] Retrieve

F1 Help ALT-X Exit C4S Admin
97072

Figure 14. Select Users.

■ Security Edit Report Admin Options Help Exit
12:31:56

[■]
Select Users

Select Users

AN USERNETNAM
IN USERNETNAM
WE_NAMEIT

New

Process

Done

Help

F1 Help ALT-X Exit C4S Admin
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NOTE: The discussion of the "New Users" window (see Figure 4) above describes the possible selections and their meaning. At this point in the development of C4S, the action of selecting facility access is not implemented. Currently a user that is granted access to a facility is granted access levels based on global access. It is recommended that the DBA enter the access as desired for facility access, so when the controls are added the administration upgrade can be accomplished smoothly.

Once these actions are complete select "OK" to complete the action. The DBA will be returned to the "Edit UsersFac" window (see Figure 5). A quick review will show the user facility association has been completed by scanning the listing in the window. If the DBA wants to terminate security modifications pressing "Esc" or selecting the "Done" icon will return the screen to the "Table" window (see Figure 2). Selecting "Esc" or "Done" will return the DBA to the main menu for further operations.

3.1.2.2 Update User Facility Association. From the "Edit Users" window (see Figure 3) selecting "Update" after selecting the desired user will bring up the "Update User Facilities" window (see Figure 15). The window has the same fields as the "New User Facilities" window (see Figure 13). The User record can be modified as desired.

Figure 15. Update User Facilities.

■ Security Edit Report Admin Options Help Exit
12:31:56

[=]
Update User Facilities

Facility^

User Id^

Facility Access

- [] DBA
- [] New
- [] Update
- [] Delete
- [] Browse
- [] Retrieve

F1 Help ALT-X Exit C4S Admin
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3.1.2.3 Delete User Facility Association. From the "Edit UsersFac" window selecting "Delete" after selecting the desired user facility association will cause the record to be deleted from the current database and placed into the archive database (see Figure 12).

3.1.2.4 Browse User Facility Association. From the "Edit Users" window (see Figure 3) selecting "Browse" after selecting the desired user will bring up the "Browse User Facilities" window (see Figure 16). The window has the same fields as the "New User Facilities" window and only the selection icons are different (see Figure 13). None of the fields can be modified, but they contain current information. The window has a "Next" icon to allow the DBA to look at the next user facility association on the list. The "Prev" icon allows the movement to a previous user facility on the list. When the beginning or end of the list is reached, the program beeps if it is asked to go beyond the bounds of the list.

Figure 16. Browse User Facilities.

■ Security Edit Report Admin Options Help Exit 12:31:56

[=] Browse User Facilities

Facility^

User Id^

Facility Access

[] DBA

[] New

[] Update

[] Delete

[] Browse

[] Retrieve

Next

Prev

Done

F1 Help ALT-X Exit C4S Admin 97072

3.1.2.5 Retrieve User Facility Association. From the "Edit Users" window (see Figure 3) selecting "Retrieve" will bring up the "Restore User Facilities" window (see Figure 17). The DBA can "Browse" the detailed

information about a selected "User Facility." The Browse facility is the same as described in Section 3.1.2.3. To restore a selected "User Facility" activate the "Restore" icon. To return to the "Edit Users" window press the "Esc" key or activate the "Done" icon.

3.1.3 Facility Functions

From the "Table" window (see Figure 2) select the "FacId" table, then select the "Process" icon to assign access facility functions. The window that pops up is labeled "Edit Facility Identification" (see Figure 18). Section 3.1.1 contains an extensive discussion on how to add a new facility. The remaining functions on the right side of the window are analogous to discussions in Section 3.1.1. However, this window has an icon on the bottom that does need further explanation.

Figure 17. Restore User Facilities.

Figure 18. Edit Facility Identification.

■ Security Edit Report Admin Options Help Exit 12:31:56

[=] Edit Facility Identification

Select Facility Identification

0070-PNL:
0098-BCSR:
0167-GAOS:
0272-DOEHQ:
0476-DOE:
0620-WHC:
0666-JAJ:
0808-HEHF:
0877-KEH:

Registry

New
Update
Delete
Browse
Retrieve
Done
Help

F1 Help ALT-X Exit C4S Admin 97072

3.1.3.1 Facility Registry. Selecting "Registry" from the "Edit Facility Identification" brings up the "Edit Facility Register" window (see Figure 19). This window allows the DBA to enter registry information concerning the selected facility. Appropriate information includes the Computer Security Program Manager, Computer Security Operations Manager, and the Computer Security Site Manager, for the selected facility. The methods accomplishing registry tasks are found in the "C4S Users Guide" in the section discussing "Security Plan Registry."

3.2 CREATE CURRENT TABLES

When the DBA selects the create current tables function, a new database will be created for current information in the directory that was previously established in the environment statement. If tables already exist, they will not be overwritten unless you answer "Yes" to an overwrite question. The function also creates index files as needed.

3.3 CREATE CURRENT INDEXES

The create current indexes function revitalizes index files that could have been corrupted for some unknown reason.

Figure 19. Edit Facility Register.

■ Security Edit Report Admin Options Help Exit		12:31:56
[=] 0620-WHC. Edit Facility Register		
Select Facility Register		<input type="button" value="New"/>
<input type="text"/>		<input type="button" value="Update"/>
CSOM:Watch:OVER:1983/03/15		<input type="button" value="Delete"/>
		<input type="button" value="Browse"/>
		<input type="button" value="Retrieve"/>
		<input type="button" value="Done"/>
		<input type="button" value="Help"/>
F1 Help ALT-X Exit C4S Admin		97072

3.4 DECRYPT CURRENT TABLES

The current database can be decrypted so that it can be accessed directly by PARADOX^{*} without knowing the password.

3.5 ENCRYPT CURRENT TABLES

Encrypting the current database so that it will not be accessible without the database password is another function that can be chosen.

3.6 CREATE ARCHIVE TABLES

By selecting the create archive tables function a new database will be created for archive information in the directory that was previously established in the environment statement. If tables already exist they will not be overwritten unless you answer "Yes" to an overwrite question. The function also creates index files as needed.

^{*}PARADOX is a trade mark of Borland International.

3.7 CREATE ARCHIVE INDEXES

Archived indexes can be created to revitalize index files that could have been corrupted for some unknown reason.

3.8 DECRYPT ARCHIVE TABLES

Archived tables can be decrypted so they can be accessed directly by PARADOX without knowing the password.

3.9 ENCRYPT ARCHIVE TABLES

Archived tables can be encrypted so they will not be accessible without the database password.

4.0 REFERENCES

WHC, 1994, *Classified Computer Configuration Control System (C⁴S), Revision 3, User's Information*, WHC-SP-1091, Westinghouse Hanford Company, Richland, Washington.

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