

CICS® Universal Client Configuration



# Configuring CICS Universal Client for Windows NT® for DCE



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# Contents

<b>Chapter 1. Overview</b> . . . . .	<b>1</b>	<b>Chapter 6. Security implementation</b> . . . . .	<b>15</b>
<b>Chapter 2. Software checklist</b> . . . . .	<b>3</b>	DCE CDS Server: principal account . . . . .	15
<b>Chapter 3. Sample configuration</b> . . . . .	<b>5</b>	DCE CDS Server: user definition . . . . .	15
DCE CDS Server . . . . .	5	CICS for AIX: resource definition . . . . .	16
CICS for AIX Server. . . . .	5	User definition . . . . .	17
Resource definition . . . . .	5	Testing your security implementation . . . . .	18
Listener definition (not required) . . . . .	6	<b>Chapter 7. Useful commands and utilities</b> <b>19</b>	
DCE on the Client . . . . .	6	Levels of software on AIX . . . . .	19
Client authentication . . . . .	9	Obtaining the DCE cell name . . . . .	19
CICS Universal Client. . . . .	10	DCE CDS Server registry. . . . .	19
<b>Chapter 4. Testing your configuration</b> . . . . .	<b>11</b>	DCE utility: klist . . . . .	20
Troubleshooting. . . . .	12	<b>Appendix. Trademarks</b> . . . . .	<b>23</b>
<b>Chapter 5. Obtaining the DCE Principal</b> . . . . .	<b>13</b>		



## Chapter 1. Overview

The sample configuration shown in Figure 1 consists of a CICS Universal Client for Windows NT Version 3.1 connecting to CICS for AIX Version 4.2. Communication is through DCE RPC provided by IBM DCE for Windows NT on the client, and IBM DCE for AIX on the CICS server. A DCE cell directory service (DCE CDS) on an AIX workstation locates the CICS server for the client.

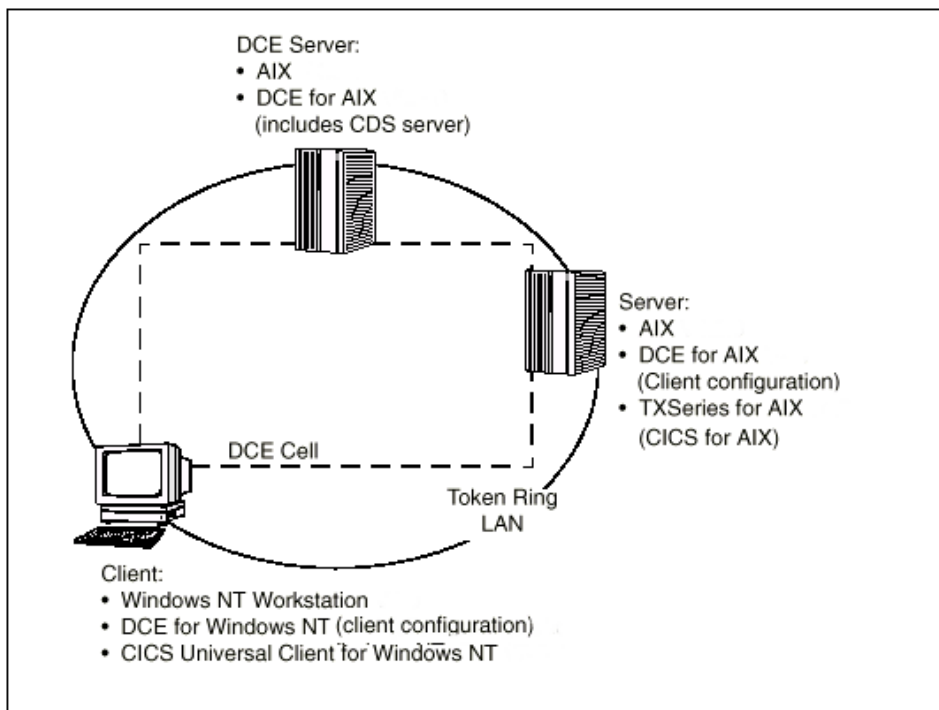


Figure 1. CICS Universal Client for Windows NT to CICS for AIX through DCE RPC

For general information about DCE, refer to the publication: *OSF Distributed Computing Environment: Understanding DCE* by Ward Rosenberry, David Kenny, and Gerry Kisher (published by O'Reilly and Associates, Inc., ISBN 1-56592-005-8).

In this document we cover the following topics:

- “Chapter 2. Software checklist” on page 3
- “Chapter 3. Sample configuration” on page 5

## Overview

- “Chapter 4. Testing your configuration” on page 11
- “Chapter 5. Obtaining the DCE Principal” on page 13
- “Chapter 6. Security implementation” on page 15
- “Chapter 7. Useful commands and utilities” on page 19



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## Chapter 2. Software checklist

The levels of software we used in the sample configuration are not necessarily the latest levels available. Check the relevant products for levels of compatible software.

We used the following software on the DCE CDS server:

- AIX Version 4.3.1
- IBM DCE for AIX Version 2.2

We used the following software on the CICS server:

- AIX Version 4.2.0
- IBM DCE for AIX Version 2.1
- TXSeries for AIX Version 4.2.0.1
  - Includes CICS for AIX Version 4.2.0.1

We used the following software on the client workstation:

- Windows NT Workstation Version 4.0 (service level 4)
- IBM DCE for Windows NT Version 2.0
- CICS Universal Client for Windows NT Version 3.1
- Java Runtime Environment (JRE) Version 1.1.8 for Windows NT (necessary for running the configuration tool and other tools.)

## Software checklist

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## Chapter 3. Sample configuration

In this section we present the definitions required for the sample configuration.

Here is a summary of some of the definitions we used:

- DCE CDS server
  - Host name: azov
  - Cell name: cics.almaden.ibm.com
  - Principal account name: cell\_admin
  - Password for principal account name: -dce-
- CICS server
  - Host name: bengal
  - Region name: SARATOGA
- Client
  - Host name: volga

---

### DCE CDS Server

The CDS does not require configuring for the sample configuration. During the initialization of CICS for AIX, the CICS for AIX region registers itself with the CDS.

---

### CICS for AIX Server

There are two CICS for AIX server definitions. The resource definition is required, but the listener definition is not.

#### Resource definition

Figure 2 on page 6 shows the definition of the CICS region SARATOGA for DCE.

## Sample configuration

```
* Region name                SARATOGA
Resource description         [Region Definition]
::
Name of the default user identifier [CICSUSER]
::
Userid authentication performed by DCE or CICS? DCE
Use DCE Name Service (CDS) to locate CICS and DCE
Encina servers?
::
```

Figure 2. CICS for AIX: resource definition

### Listener definition (not required)

Because the CICS for AIX server is located by the CDS, a CICS listener definition is not required in this configuration.

---

## DCE on the Client

For the sample configuration, install the DCE Runtime Services component on the client workstation. By default, the product will be installed in the C:\Program Files\DCE directory.

To configure DCE on the client workstation:

1. From **Start, Programs -> DCE for Windows NT Version 2.0**, select **DCEsetup** (see Figure 3).
2. Select the **Configuration** pull-down, **Create**, then **Full Client...** to display the Full Client Configuration Wizard panel .

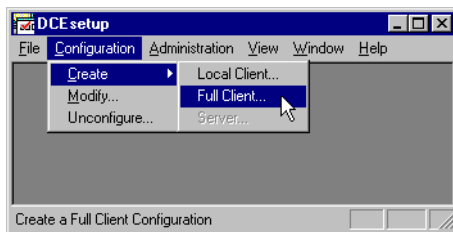


Figure 3. DCE setup: selecting the Full Client option

3. On the first panel of the Full Client Configuration Wizard panel (see Figure 5 on page 7), ensure that:
  - The Host name of your client workstation **is not** fully qualified.
  - The Cell name **is** fully qualified. The cell name can be obtained by starting a Telnet session to the host name of the DCE cell and entering getcellname at the command prompt (see Figure 4 on page 7).

```
root@azov > getcellname
/.../cics.almaden.ibm.com
```

Figure 4. DCE CDS Server: `getcellname` command

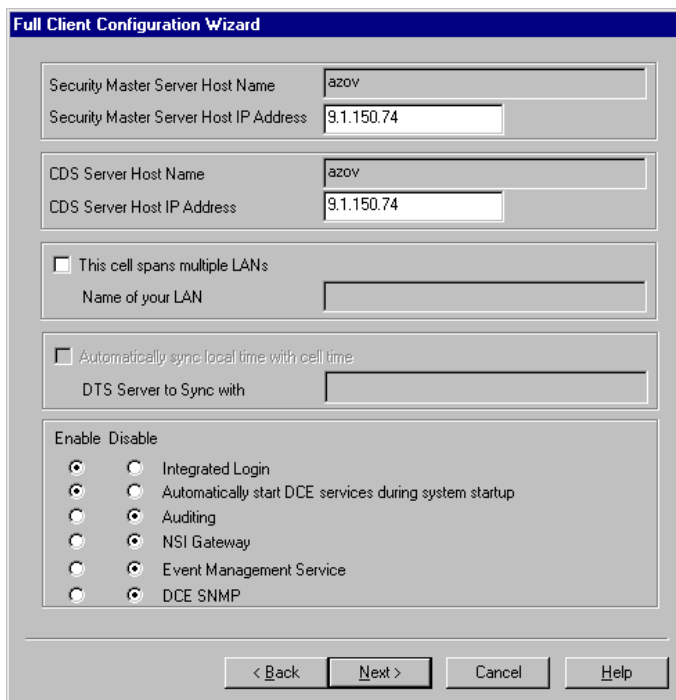
- The **Security Master Server Host Name** is not fully qualified.
  - The option, **CDS Server is within Broadcast Range**, is unselected. Then enter an unqualified **CDS Server Host Name**.
  - The option, **Distributed Time Service**, is unselected.
4. Select the **Next** button to proceed to the next screen.

Figure 5. DCE setup: Full Client Configuration Wizard (first panel)

5. On the second panel of the Full Client Configuration Wizard panel (see Figure 6 on page 8), ensure that:
- IP addresses, instead of host names, are specified for the Security Master and CDS Server Names. If, when testing your configuration, the error message Configuration Unsuccessful appears, it is likely that there may be an error in these two fields.
  - The option, **Integrated Login**, is enabled.

## Sample configuration

- The option, **Automatically start DCE services during system startup**, is enabled.
6. Select the **Next** button to display a summary of your settings.



The screenshot shows the 'Full Client Configuration Wizard' window. It has a blue title bar and a grey background. The window is divided into several sections:

- Security Master Server:** Host Name is 'azov', Host IP Address is '9.1.150.74'.
- CDS Server:** Host Name is 'azov', Host IP Address is '9.1.150.74'.
- LAN Settings:** A checkbox 'This cell spans multiple LANs' is unchecked. Below it is a text box for 'Name of your LAN'.
- Time Sync:** A checkbox 'Automatically sync local time with cell time' is unchecked. Below it is a text box for 'DTS Server to Sync with'.
- Service Enablement:** A table with two columns: 'Enable' and 'Disable'. The 'Enable' column has radio buttons for 'Integrated Login', 'Automatically start DCE services during system startup', 'Auditing', 'NSI Gateway', 'Event Management Service', and 'DCE SNMP'. The 'Disable' column has radio buttons for 'Integrated Login', 'Automatically start DCE services during system startup', 'Auditing', 'NSI Gateway', 'Event Management Service', and 'DCE SNMP'. The 'Automatically start DCE services during system startup' option is selected in the 'Enable' column.

At the bottom of the window are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

Figure 6. DCE setup: Full Client Configuration Wizard (second panel)

7. Select the **Finish** button. DCEsetup then:
  - Configures and creates an RPC connection to the DCE Cell Directory
  - Configures and starts the Security client
  - Configures and starts the Directory client
  - Registers the client with the DCE Cell Directory

Figure 7 on page 9 shows a summary of the DCEsetup log for our workstation client, volga.

```

DCEsetup
File Configuration Administration View Window Help

DCEsetup
=====
config.dce -config_type full -cell_admin cell_admin -admin_pwd <*****> -d
=====
14:38:21: Gathering current configuration information...
14:38:25: Configuration of DCE Host, volga, will now begin.
14:38:26: Configuring RPC...
14:38:42: Starting RPC...
14:38:44: RPC was started successfully.
14:38:45: RPC configuration is complete.
14:38:45: Configuring the Security client...
14:38:50: Starting the Security client...
14:38:55: The Security client was started successfully.
14:38:56: Security client configuration is complete.
14:38:56: Configuring the Directory client...
14:38:57: Starting the Directory client...
14:39:11: Waiting up to 60 minutes for the directory server.
14:39:11: Contacted the directory server.
14:39:11: The Directory client was started successfully.
14:39:17: Waiting up to 60 minutes for DCED registration to be functional.
14:39:33: Directory client configuration is complete.
14:39:34: Gathering component state information...
14:39:36: I      DCE Component Summary for Host: volga
14:39:36:      Component      Configuration State  Running State
14:39:36: Security client      Configured          Running
14:39:36: RPC                   Configured          Running
14:39:36: Directory client      Configured          Running
14:39:36: DCECM                 Configured          Running
14:39:36:
14:39:36: The DCE component summary is complete.
14:39:36: Configuration of DCE Host, volga, was successful.
14:39:36: Configuration completed successfully.
=====
For Help, press F1

```

Figure 7. DCE setup: successful configuration of DCE Client

## Client authentication

The CICS Universal Client utility, CCLAUTH, must be run to enable the CICS Universal Client to participate in authenticated RPC within the DCE cell. If this utility is not run, the CICS Universal Client will only be able to make unauthenticated RPCs and will therefore not be able to use the coordinated signon features.

The CCLAUTH program must be supplied with the DCE cell administrator userid and password, using the /U= and /P= parameters, as it needs to update the DCE registry with details of the client system. The CCLAUTH program need only be run once on each CICS Universal Client workstation, although it is harmless if run multiple times.

## Sample configuration

---

### CICS Universal Client

In the sample configuration the CICS server is located through the CDS. Therefore you do not need any Server or Driver entries in the configuration file CTG.INI.



---

## Chapter 4. Testing your configuration

After you have installed and configured all relevant products for the sample configuration, we recommend that you:

1. Start up the DCE Cell Directory.
2. Start up the CICS for AIX region.
3. On the client workstation, login to DCE (see Figure 8).

```
C:\dce_login
Enter Principal Name: cell_admin
Enter Password:
Login Successful
```

Figure 8. Client Workstation: *dce\_login*

We used userid `cell_admin` and password `-dce-`.

4. On the client workstation, authenticate your CICS Universal Client to enable coordinated DCE signon facilities (see Figure 9).

```
C:>cclauth /u=cell_admin /p=-dce-
CCL8201I CCLAUTH - CICS Client DCE Security Configuration
CCL0002I (C) Copyright IBM Corporation 1994,1999. All rights reserved.
CCL8219I DCE Security Configuration completed successfully
```

Figure 9. Client Workstation: *Client authentication*

We used userid `cell_admin` and password `-dce-`.

5. Issue the `cicscli /s=SARATOGA` command to establish a connection to the CICS for AIX region, SARATOGA. The server name, SARATOGA, is not listed in the configuration file CTG.INI. The CDS will locate the server, SARATOGA, in the DCE Cell Directory.
6. Issue the `cicscli /l` command to display the status of the connection (see Figure 10 on page 12).

## Testing your configuration

```
C:>cicscli -l
CCL8001I CICSCLI - CICS Client Control Program
CCL0002I (C) Copyright IBM Corporation 1994,1999. All rights reserved.
CCL8041I The CICS Client is using the following servers:
CCL8042I Server 'SARATOGA' (using 'RPC' to 'SARATOGA') is available
```

*Figure 10. CICS Universal Client: display connection status*

7. Issue the `cicsterm /s=SARATOGA` command to connect a terminal to the CICS for AIX server SARATOGA.

---

## Troubleshooting

For information on dealing with DCE communication problems, refer to your *CICS Universal Client for Windows Administration* book.

---

## Chapter 5. Obtaining the DCE Principal

To enable the client user or client application to change the DCE login if it receives or detects a security error, the DCE principal that is propagated to the CICS server on the authenticated RPC can be obtained at the following times:

- For CICSTERM and CICSPRNT requests, you must issue a `dce_login` command to log in to DCE before starting the emulator.
- For ECI applications, you can use the DCE `sec_login` API calls to change the current principal at the start of each new logical unit of work, if required.
- For EPI applications, you can use the DCE `sec_login` API calls to change the current principal upon each **CICS\_EpiAddTerminal** or **CICS\_EpiStartTran** call, and before starting any ATI transactions, if required.

For more information about the ECI and EPI, refer to *CICS Family: Client/Server Programming* book.



---

## Chapter 6. Security implementation

To implement security for the sample configuration, you must define the new user ID and password to both the DCE CDS server and CICS for AIX.

---

### DCE CDS Server: principal account

For the client to log in to DCE you must create a principal account. Figure 11 shows the commands we entered to create a principal account for user ID SYSAD.

First log in to DCE. We used the supplied user ID of `cell_admin` with password `-dce-`. Then run the `rgy_edit` command.

The `d po` command is an abbreviation for domain principal.

```
# dce_login
Enter Principal Name: cell_admin
Enter Password:
# rgy_edit
Current site is: registry server at
/.../cics.almaden.ibm.com/subsys/dce/sec/azov.almaden.ibm.com
rgy_edit=> do p
Domain changed to: principal
rgy_edit=> add
Add Principal=> Enter name: SYSAD
Enter UNIX number: (auto assign)
Enter full name: () CICS Client User
Enter object creation quota: (unlimited)
```

*Figure 11. DCE CDS Server: create a principal account*

---

### DCE CDS Server: user definition

After you have created a principal account, you create a user definition. Figure 12 on page 16 shows the values we entered to create a user definition for user ID SYSAD.

The `cics_users` account group is the DCE security group.

## Security implementation

```
rgy_edit=> add
Add Account=> Enter account id [pname]: SYSAD
Enter account group [gname]: cics_users
Enter account organization [oname]: none
Enter password:          (this is the password for userid SYSAD)
Retype password:
Enter your password:     (this is our cell_admin password. -dce-)
Enter misc info: ()
Enter home directory: (/)
Enter shell: ()
Password valid [y/n]? (y)
Enter expiration date [yy/mm/dd or 'none']: (none)
Allow account to be server principal [y/n]? (y)
Allow account to be client principal [y/n]? (y)
Account valid for login [y/n]? (y)
Allow account to obtain post-dated certificates [y/n]? (n)
Allow account to obtain forwardable certificates [y/n]? (y)
Allow certificates to this account to be issued via TGT
authentication [y/n]? (y)
Allow account to obtain renewable certificates [y/n]? (y)
Allow account to obtain proxiable certificates [y/n]? (n)
Allow account to obtain duplicate session keys [y/n]? (n)
Good since date [yy/mm/dd.hh:mm]: (1999/10/26.15:02)
Create/Change auth policy for this acct [y/n]? (n)
```

*Figure 12. DCE CDS Server: user definition*

---

### CICS for AIX: resource definition

Figure 13 on page 17 shows the definition of the CICS region SARATOGA for DCE.

```

* Region name                                SARATOGA
Resource description                          [Region Definition]
::
::
Name of the default user identifier           [CICSUSER]
Type of RSL checking for Files                internal
Type of RSL checking for TDQs                internal
Type of RSL checking for TSQs                internal
Type of RSL checking for Journals            internal
Type of RSL checking for Programs            internal
Type of RSL checking for Transactions         internal
Do you want to use an External Security Manager? no
::
Min protect level used when accepting RPCs    pkt
Min protect level for logical TDQs            pkt
Min protect level for physical TDQs           pkt
Min protect level for non-recoverable TDQs    pkt
Min protect level for recoverable TSQs        pkt
Min protect level for non-recoverable TSQs    pkt
Min protect level for locally queued PROTECT ATIs pkt
Min protect level for locally queued ATIs     pkt
::
::
Userid authentication performed by DCE or CICS? DCE
Use DCE Name Service (CDS) to locate CICS and Enci DCE
na servers?
::
::

```

Figure 13. CICS for AIX: resource definition

## User definition

Figure 14 on page 18 shows the CICS definition for user ID SYSAD. Note that the `cics_users` DCE security group matches the definition for the DCE account group in Figure 12 on page 16.

## Security implementation

```
* User Identifier [SYSAD]
* Model User Identifier CICSUSER
* Region name [SARATOGA]
Add to database only OR Add and Install Add
Ignore errors? no
Group to which resource belongs [ ]
Activate the resource at cold start? yes
Resource description [CICS Client User]
* Number of updates 0
Protect resource from modification? no
Transaction Level Security Key List [1]
Resource Level Security Key List [none]
DCE principal of the user [SYSAD]
User priority [0]
User Trace filename []
Operator ID [AIX]
(Obsolete) DCE cell name []
Encrypted password []
* Add or change user in DCE Security Registry? yes
* DCE Security group [cics_users]
* DCE Security organisation [none]
* HOME directory [/]
* Initial PROGRAM [cicsterm]
```

Figure 14. CICS for AIX: User Definition

---

## Testing your security implementation

To test that security has been implemented correctly:

1. Issue a CICSTERM request to the CICS region to start up a 3270 terminal emulation session.  
In the sample configuration we entered the `cicsterm /s=SARATOGA` command.
2. On the 3270 terminal emulator, enter CICS transaction CESN to display the CICS signon panel.
3. Enter user ID SYSAD and password SYSAD.

The following message confirms a successful signon to CICS:

```
ERZ012009I: Sign-on by DCE principal 'SYSAD' as CICS user 'SYSAD' is complete
```

4. To test ECI security, a security pop-up appears upon the first ECI request. Enter user ID SYSAD and password SYSAD in the pop-up window.

Refer to *CICS Family: Client/Server Programming* and the *CICS Universal Client for Windows NT Administration* books for more information about ECI security.



---

## Chapter 7. Useful commands and utilities

You will find the commands discussed in this section useful during installation and configuration.

---

### Levels of software on AIX

To find out the levels of software installed on AIX:

- For the operating system, issue the `lslpp -l "bos*" |pg` command.
- For DCE, issue the `lslpp -l "dce*" |pg` command. Look for the `dce.cds.rte` entry.
- For CICS, issue the `lslpp -l "cics*" |pg` command. Look for the `cics.base.rte` entry.

---

### Obtaining the DCE cell name

To obtain the cell name, start a Telnet session to the host name of the DCE cell and enter `getcellname` at the command prompt (see Figure 4 on page 7).

---

### DCE CDS Server registry

To confirm that your client workstation has registered successfully with the DCE CDS server:

1. Telnet to the DCE CDS server (if running on a remote workstation).
2. Enter the `rgy_edit` command (see Figure 15).
3. Enter the `vi` command.
4. Locate entries for the host name of your client workstation, the secure user ID `SYSAD`, and an entry for your CICS Universal Client for Windows NT.

```
root&azov > rgy_edit
Current site is: registry server at ../../cics.almaden.ibm.com
rgy_edit vi
root
::
hosts/volga/self
SYSAD
cics/cclwnt/0006296baff7
::
```

Figure 15. DCE CDS Server: registry details

## Useful commands and utilities

The entry for your CICS Universal Client for Windows NT contains the MAC address of your client workstation. To view the MAC address of your client workstation, enter the `net config workstation` command on your client workstation (see Figure 16).

```
C:\>net config workstation
Computer name           \\VOLGA
User name               hnagres6
Workstation active on   NetBT_Ibmtok51 (0006296BAFF7)
                       Nbf_Ibmtok51 0006296BAFF7) NwlnkNb (0006296BAFF7)
Software version        Windows NT 4.0
Workstation domain      ITSOSJNT
Logon domain            VOLGA
COM Open Timeout (sec)  3600
COM Send Count (byte)   16
COM Send Timeout (msec) 250
The command completed successfully.
```

Figure 16. Client workstation configuration

---

### DCE utility: klist

The `klist` utility provides DCE information about the DCE cell, the DCE cell server, and DCE on the client workstation. It is a useful utility to confirm that DCE has been configured correctly for your environment and to display the DCE principal name of the user currently logged on. Figure 17 on page 21 shows the output when `klist` was run from a client workstation where the user had logged on with DCE principal name `SYSAD` (highlighted).

```

DCE Identity Information:
Warning: Identity information is not certified
Global Principal: ../../cics.almaden.ibm.com/SYSAD
Cell:      a8dfde7a-5d79-11d2-b6f2-08005a0f2150 ../../cics.almaden.ibm.com
Principal: 0000008b-6d27-21d2-b400-08005a0f2150 SYSAD
Group:     0000000c-5d79-21d2-b601-08005a0f2150 none
Local Groups:
00000072-5d79-21d2-9f01-08005a0f2150 cics_users
0000000c-5d79-21d2-b601-08005a0f2150 none

Identity Info Expires: 1998/10/27:02:58:29
Account Expires:      never
Passwd Expires:       never

Kerberos Ticket Information:
Ticket cache: C:\PROGRA~1\DCE\dcelocal\var\security\creds\dcecred_00609c00
Default principal: SYSAD@cics.almaden.ibm.com
Server: krbtgt/cics.almaden.ibm.com@cics.almaden.ibm.com
valid 1998/10/26:16:58:29 to 1998/10/27:02:58:29
Server: dce-rgy@cics.almaden.ibm.com
valid 1998/10/26:16:58:29 to 1998/10/27:02:58:29
Server: dce-ptgt@cics.almaden.ibm.com
valid 1998/10/26:16:59:18 to 1998/10/26:18:59:18
Client: dce-ptgt@cics.almaden.ibm.comServer: krbtgt/cics.almaden.ibm.com@cics.almaden.ibm.com
valid 1998/10/26:16:59:18 to 1998/10/26:18:59:18
Client: dce-ptgt@cics.almaden.ibm.comServer: dce-rgy@cics.almaden.ibm.com
valid 1998/10/26:16:59:18 to 1998/10/26:18:59:18
Client: dce-ptgt@cics.almaden.ibm.comServer: hosts/azov.almaden.ibm.com/cds-server@cics.almaden.ibm.com
valid 1998/10/26:16:59:18 to 1998/10/26:18:59:18

```

Figure 17. DCE utility: klist



---

## Appendix. Trademarks

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