IBM

OS/390 Hardware Configuration Manager

User's Guide Update

TCP/IP Support

OS/390 HCM 2.4.0 Service Level 7

OS/390 HCM 2.7.0 Service Level 3

OS/390 HCM 2.9.0

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Preface

This update applies to the User's Guide of OS/390 2.4.0 Hardware Configuration Manager, SC33-6595-00 for PTFs UR90305 and UR90306 (HCM 2.4.0 Service Level 7).

With HCM 2.4.0 SL 7 it is possible to run HCM on a Windows NT or a Windows 95 workstation with a TCP/IP connection to the HCD server on an OS/390 host. To use TCP/IP connectivity, some configuration and setup steps have to be performed and some prerequisites have to be met.

Therefore, this update to the documentation is available to guide you through these steps.

This update contains information that either enhances or replaces parts of the HCM User's Guide.

This HCM User's Guide Update replaces the User's Guide Update, which has been provided with OS/390 2.4.0 Service Level 3. The content of the User's Guide Update of Service Level 3 is no more applicable with OS/390 2.4.0 HCM Service Level 7.

This document is available from the HCM home page on the Internet:

  http://www.ibm.com/s390/hcm/

Please, see also the EEQREAD.ME file of HCM which resides on the HCM product directory.

Note:
• This description of how to setup and customize the HCM-HCD TCP/IP connection is also valid for OS/390 2.7.0 HCM.
• If you do not have installed the PTFs UW59389 for HCS6051 or UW59395 for HCS6031 of APAR OW38236, then the output on the console or the job output of the HCM Dispatcher or HCM agent looks slightly different from the samples which you find in the chapter *Troubleshooting*.
• If you do not have installed the PTFs UW68997 for HCS6051 or UW68964 for HCS6031 or UW68998 for HCS6091 of APAR OW43730, then the output of the job output of the HCM Dispatcher or HCM agent does not contain all the information as shown in the samples which you find in the chapter *Troubleshooting*.

General

OS/390 2.4.0 HCM Service Level 7 provides the capability to run HCM on a workstation with operating system Windows NT or Windows 95 and with a host connection to the HCD server on the OS/390 host based on the TCP/IP network protocol.

This service level of HCM enhances the TCP/IP support of HCM, which has been introduced with OS/390 2.4.0 HCM Service Level 3. Remember, before Service Level 3 has been available, HCM could only use an APPC (and AnyNet for TCP/IP) connection to its HCD server. The first TCP/IP support of HCM required, that the user starts the HCD server on the host himself either manually or via transferring a job to the host by using FTP. To avoid the necessity that a HCM user has to start the HCD server, the new support provides a daemon program (HCM dispatcher), which waits for incoming HCM login requests on a specific port. As soon as there is a HCM login request, this dispatcher starts an HCM agent (HCD server program) after the userid and password have been validated. After the HCM agent is started for a login request, the dispatcher passes back the used TCP/IP port and HCM can continue to communicate with the HCM agent using the provided TCP/IP port.
After the HCM client closes the connection to the HCM agent, the HCM agent will be terminated automatically and the IP port is free again.

This new TCP/IP support has the advantage, that each HCM user starts a HCM session by specifying a unique system defined port name.

Now you have the possibility to use
• a TCP/IP connection, as well as
• an APPC connection (with IBM Personal Communications)
to the host, if HCM is running on a workstation with Windows NT or Windows 95.

Note: If HCM runs on a workstation with WIN-OS/2 or Windows 3.n, it can only use an APPC connection to the host (with CM/2 or Personal Communications or NS/WIN), as described in the HCM User's Guide (SC33-6595).

This document explains how to get started using HCM over a TCP/IP connection.

(The TCP/IP support code uses POSIX=ON.)

Prerequisites

Workstation Requirements

To use HCM with a TCP/IP connection, you need
• Windows NT 4.0 or Windows 95 (or higher), with
• TCP/IP networking protocol installed and configured.
• For the installation of HCM, a method to download the HCM product code onto the workstation

Host Requirements

To use HCM with a TCP/IP connection, you need
- OS/390 2.4.0 or later,
- with UNIX System Services activated,
- TCP/IP running,
- permission to use UNIX System Services for the HCM user (superuser is **not** necessary, but a home directory should be provided for the user), and
- the necessary HCD support must be installed:
  - For HCS6031: UW90513, UW59395, and UW68964
  - For HCS6051: UW90514, UW59389, and UW68997
  - For HCS6091: UW68998

TCP/IP Configuration

Before you can use HCM via TCP/IP, the TCP/IP networking protocol must be installed and configured on your workstation. If this has not already been done on your workstation, the sample configuration in the sections below can be used as a guide. Note, however, that your configuration setup might be different, depending on your environment and your needs.

To configure TCP/IP you will have to enter a few parameters into the appropriate operating system networking dialogs. The parameter values will be supplied by your network administrator.

While the details of TCP/IP configuration vary from one installation to another, a typical set of configuration parameters consists of:

- IP address for your workstation:
  A 32-bit number typically written in *dotted decimal notation*, for example, **9.164.182.73**.

- Subnet mask: for example, **255.255.224.0**.

- IP address of a default router: for example, **9.164.181.1**.

- IP address of a name server: for example, **9.164.182.32**.

- Host name for your workstation: for example, **yogi**.

- Name of the TCP/IP *domain* your workstation belongs to,
  for example, **sw.boeblingen.ibm.com**.

Note: After completing the TCP/IP configuration, you will have to reboot your workstation for the changes to take effect.

TCP/IP Configuration on Windows NT 4.0

This section shows how to install and configure the TCP/IP protocol support onWindows NT 4.0 using the sample parameter values above:

Open *My Computer - Control Panel - Network*, then select the *Protocols* tab of the *Network* notebook:
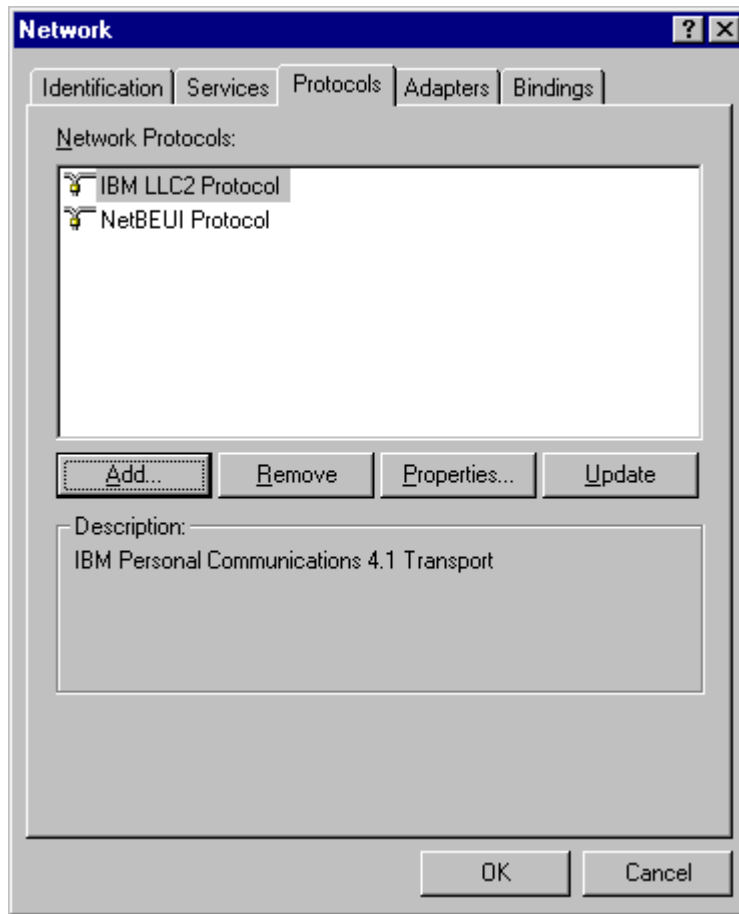
If TCP/IP is not listed among the installed network protocols, you will have to install the TCP/IP protocol:
Push the *Add...* button, then select the *TCP/IP protocol* :
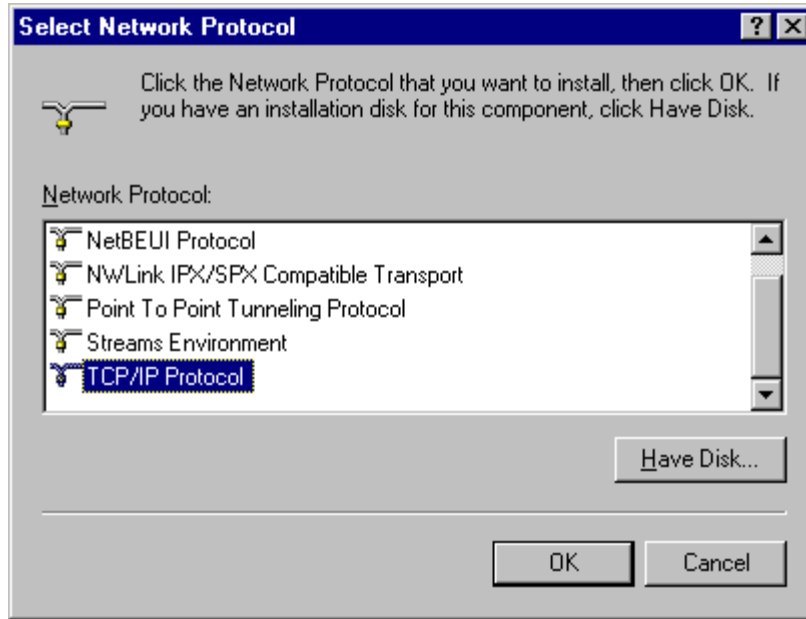
Press the *OK* button:
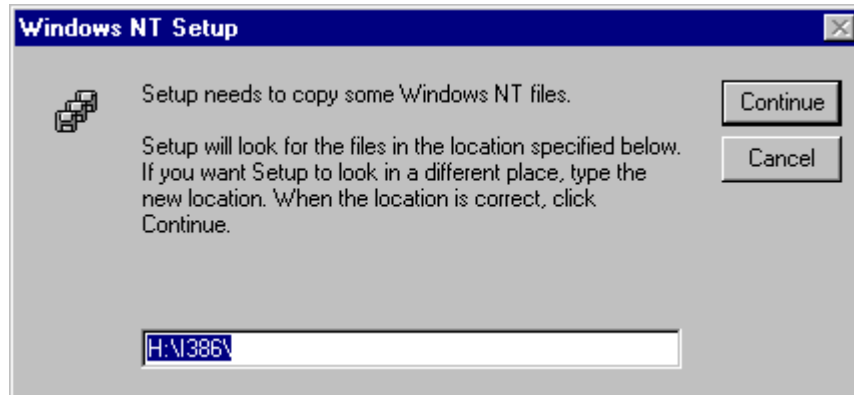
Insert your Windows NT CD-ROM (or the appropriate diskette) and press the *Continue* button.
Follow the operating system's instructions to install TCP/IP support.
When finished, your network protocol list should now include TCP/IP:
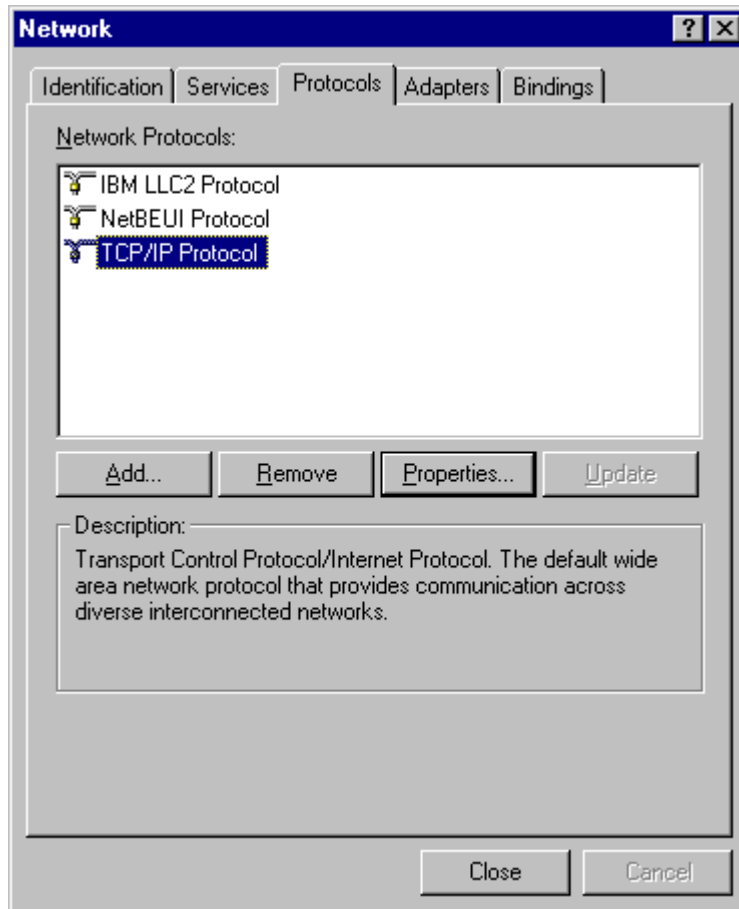
Press the *Close* button.
The *TCP/IP Properties* configuration dialog should appear:
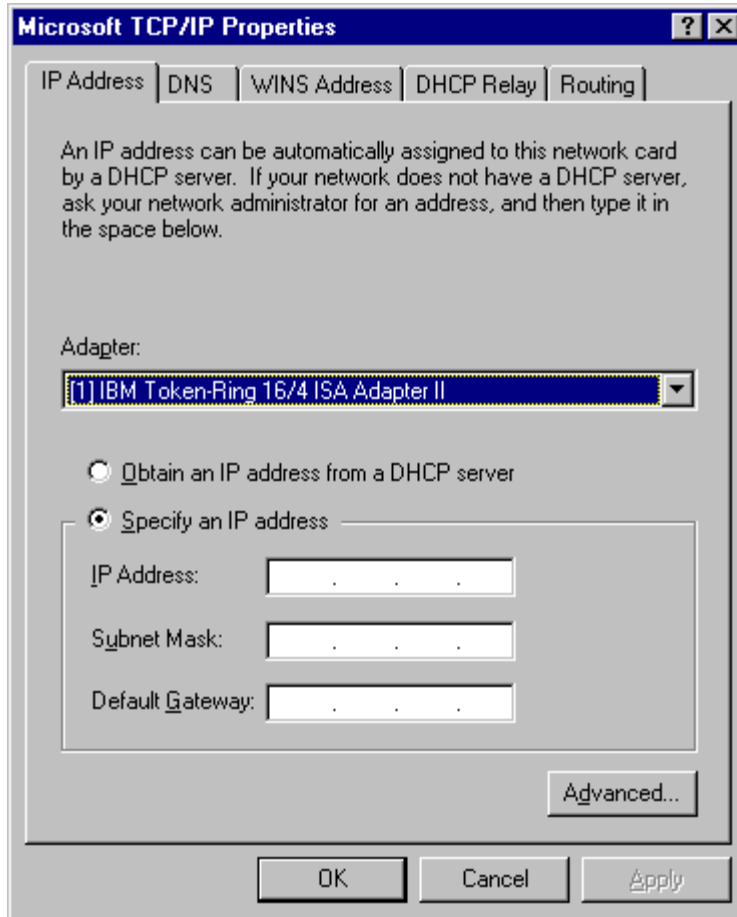
Type your workstation's IP address (for example, **9.164.182.73**) into the *IP Address* entry field.
Type your subnet mask (for example, **255.255.224.0**) into the *Subnet Mask* entry field.
Type your default router's IP address (for example, **9.164.181.1**) into the *Default Gateway* entry
field:
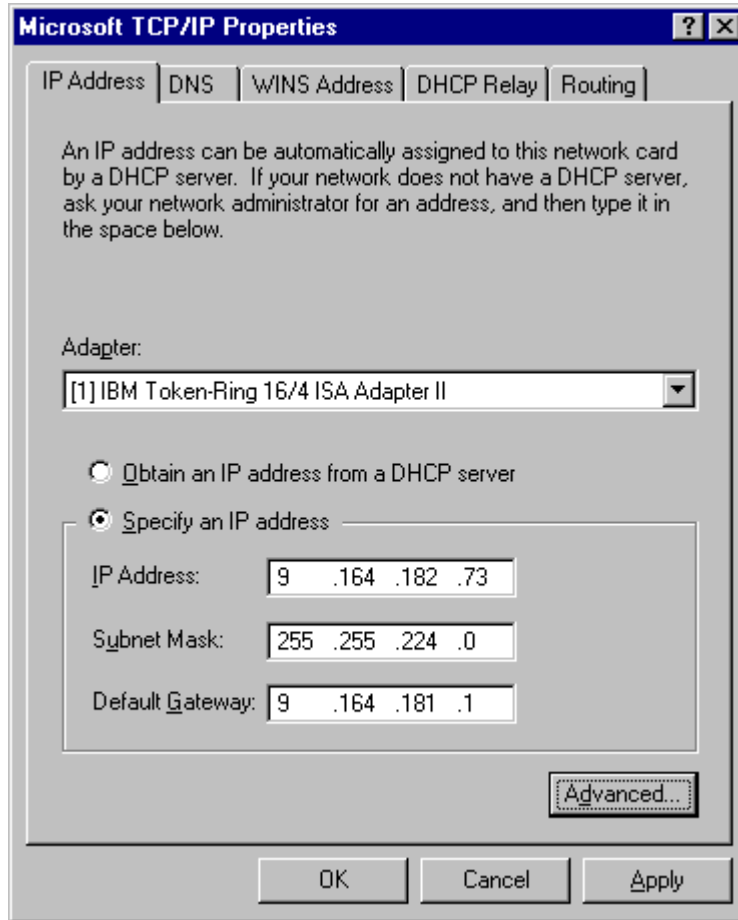
Select the *DNS* tab of the *TCP/IP Properties* notebook.

Optionally, type your workstation's TCP/IP host name (for example, **yogi**) into the *Host Name* entry field.

Optionally, type the name of the TCP/IP domain your workstation belongs to (for example, **sw.boeblingen.ibm.com**) into the Domain entry field.
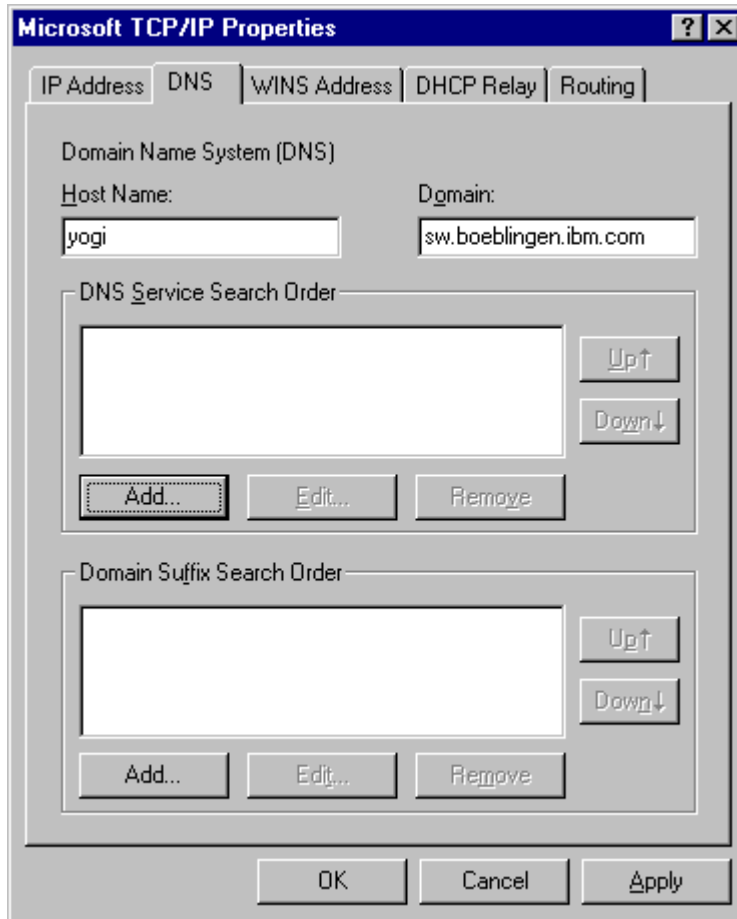
Next press the *Add...* button in the *DNS Service Search Order* dialog and type in the IP address of your name server (for example, **9.164.182.32**):
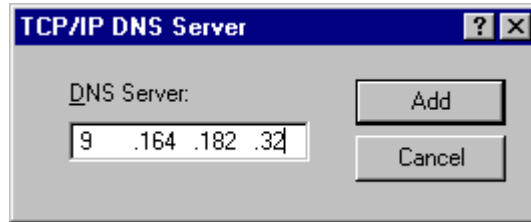
Press the *Add* button.
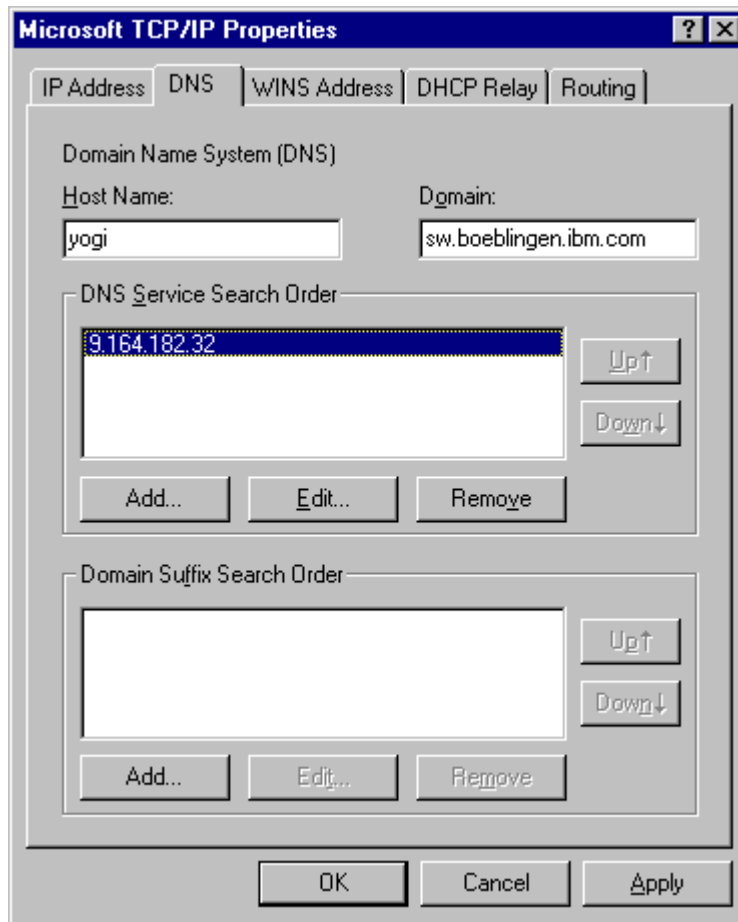
Select the *WINS Address* tab of *TCP/IP Properties* notebook.

Type the IP address of your name server (i.e., **9.164.182.32**) again into the *Primary WINS Server* entry field.

Check the *Enable DNS for Windows Resolution* checkbox.
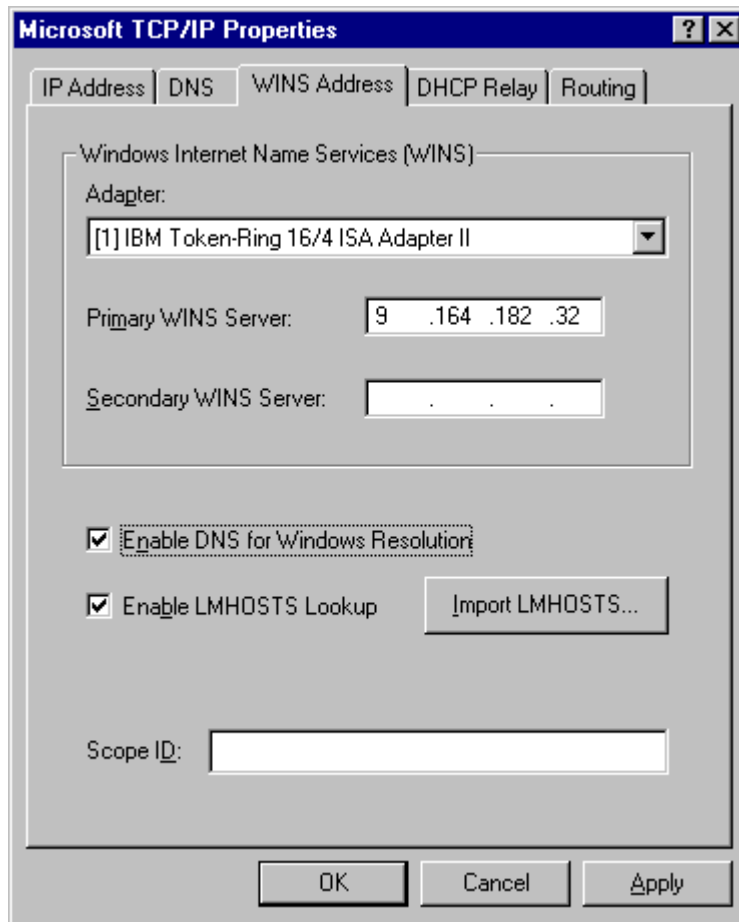
Press the *OK* button of the *TCP/IP Properties* notebook.
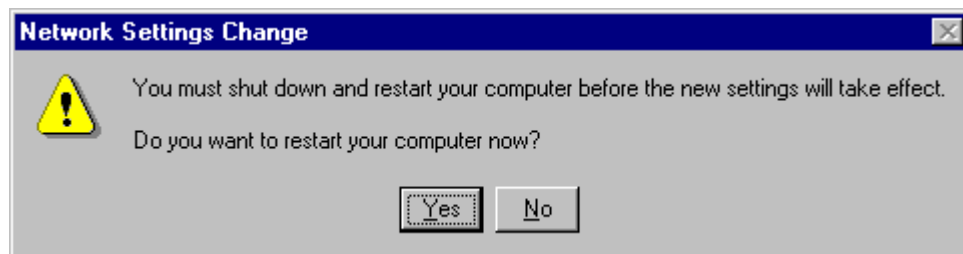
Press the *Yes* button to shut down and restart your workstation.

TCP/IP installation and configuration is now complete.

TCP/IP Configuration on Windows 95

This section shows how to install and configure the TCP/IP protocol support on Windows 95 using the sample parameter values above:

Open *My Computer - Control Panel - Network*, then select the *Configuration* tab of the *Network* notebook:
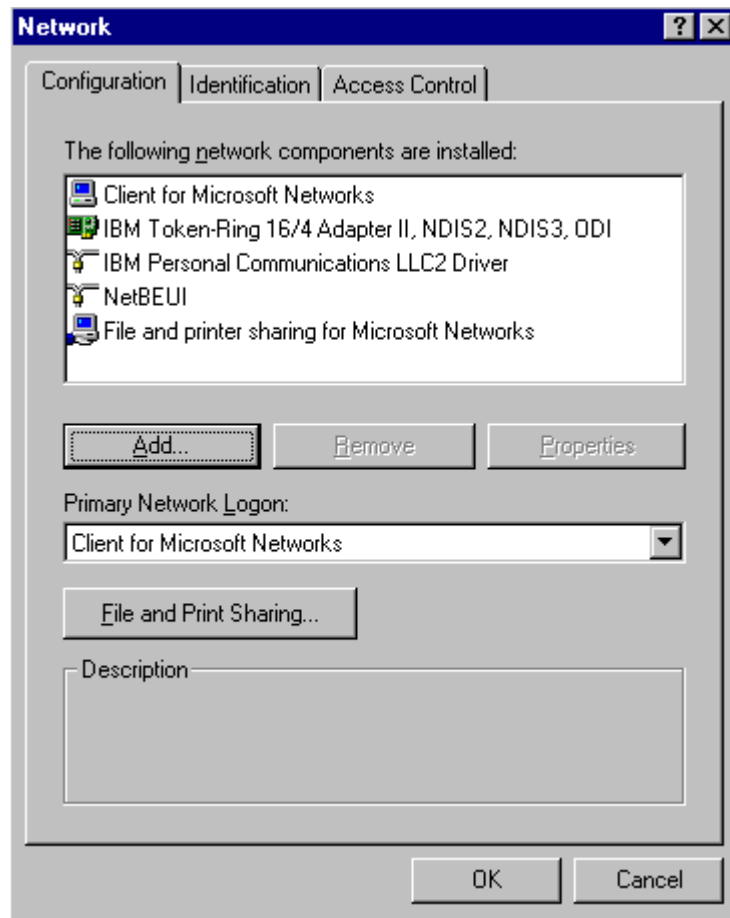
If TCP/IP is not listed among the installed network components, you will have to install the TCP/IP protocol:

Push the *Add...* button, then select *Protocol* as the type of network component you want to install:
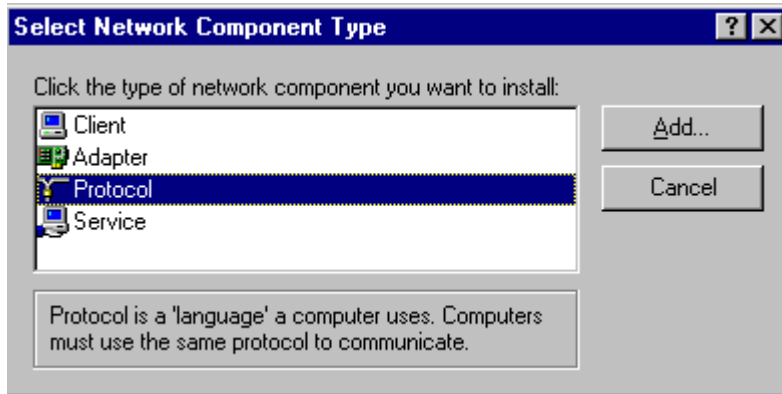
Push the *Add...* button.
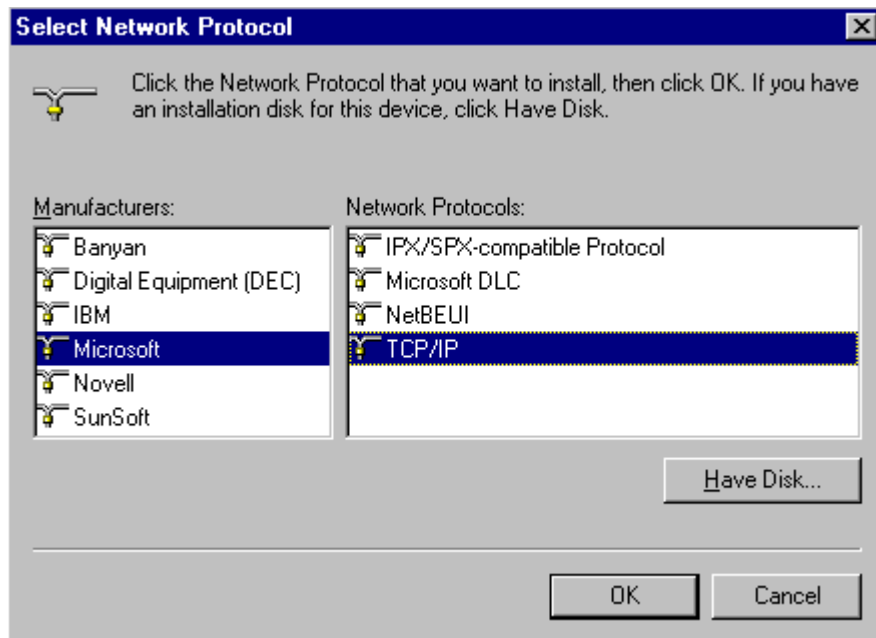
Select *Microsoft* from the list of *Manufacturers* and *TCP/IP* from the list of *Network Protocols*. Then press *OK*. Follow the operating system's installation instructions.
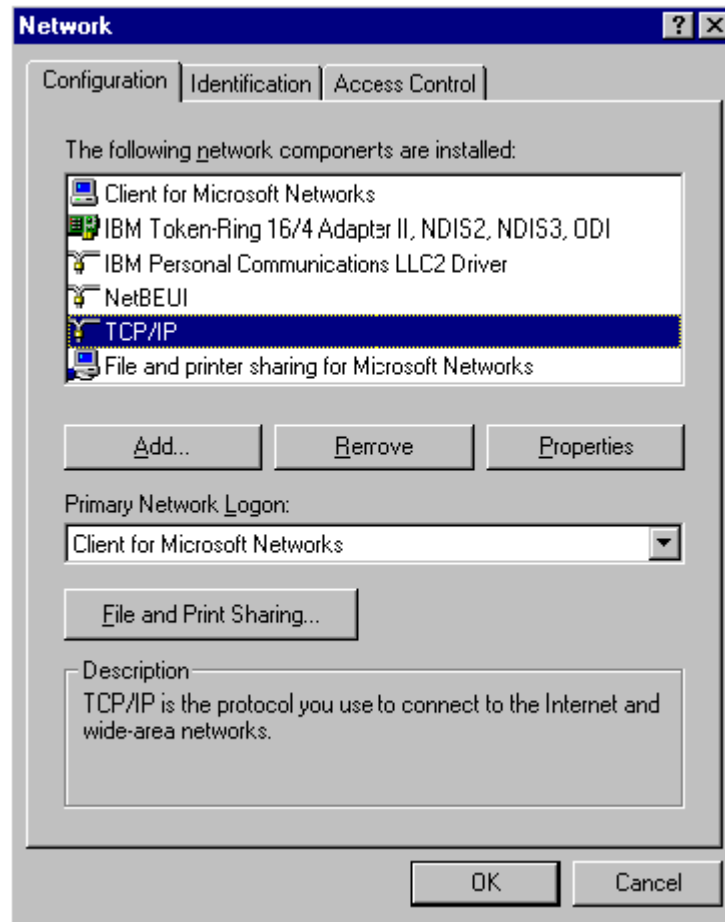
TCP/IP is now listed as an installed network component.
Select *TCP/IP* and press the *Properties* button.
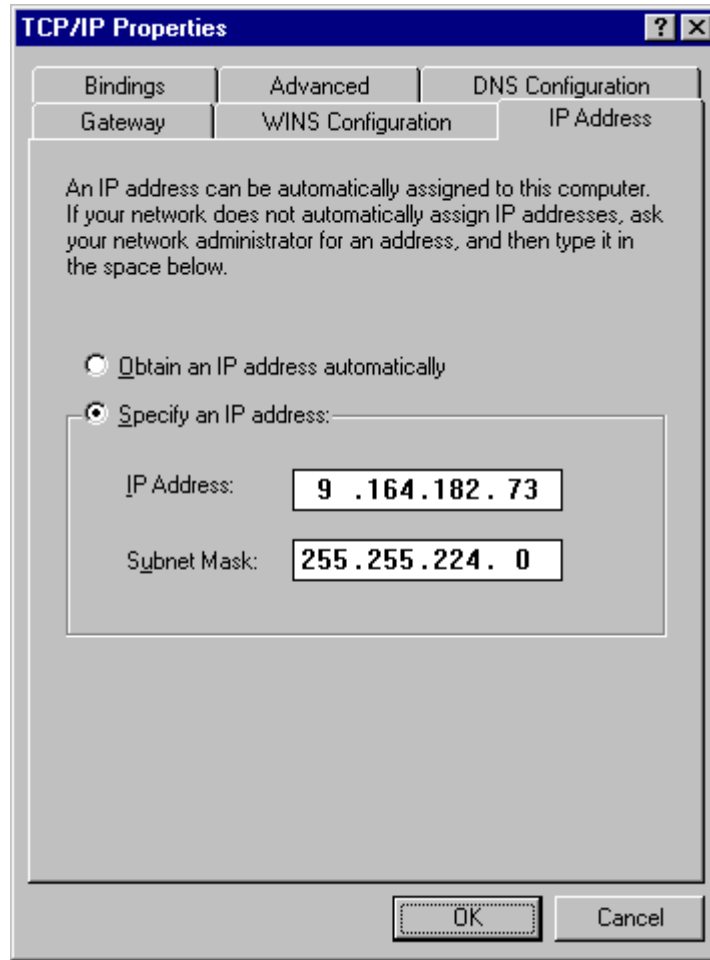
Select the *IP Address* tab of the *TCP/IP Properties* notebook.
Select the *Specify an IP address* radio button and type your IP address and subnet mask into the corresponding entry fields.

Select the *Gateway* tab of the *TCP/IP Properties* notebook.

Type your default router's IP address into the *New Gateway* entry field, then press the *Add* button.
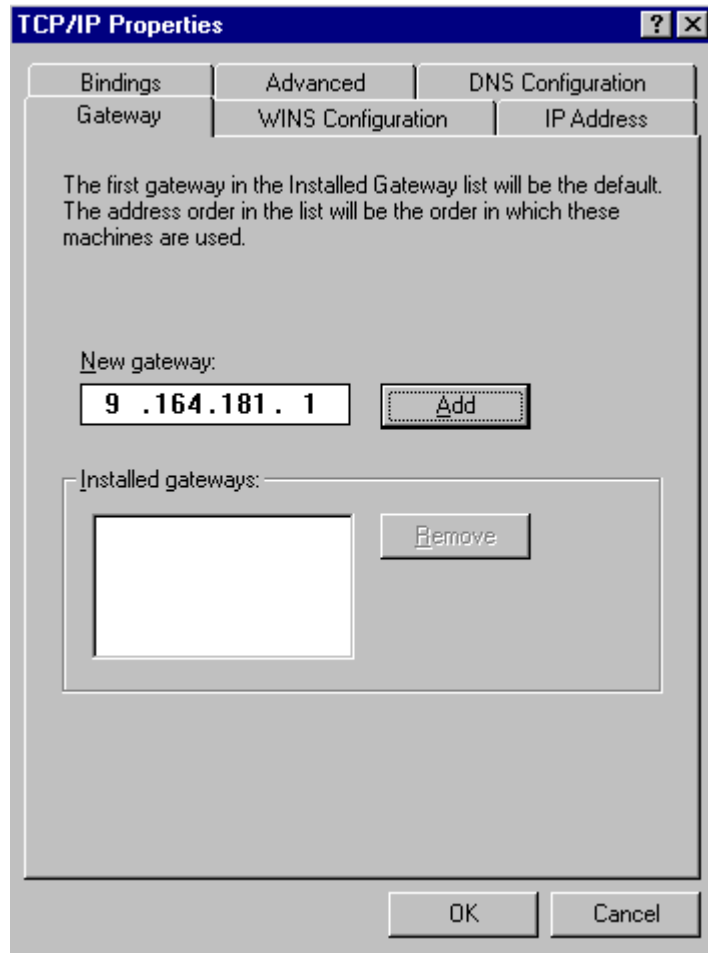
Select the *DNS Configuration* tab of the *TCP/IP Properties* notebook.

Select the *Enable DNS* radio button.

Optionally, type your workstation's TCP/IP host name (for example, **yogi**) into the *Host* entry field.

Optionally, type the name of the TCP/IP domain your workstation belongs to (for example, **sw.boeblingen.ibm.com**) into the *Domain* entry field.

Type your name server's IP address into the *DNS Server Search Order* entry field.

Then press the *Add* button.
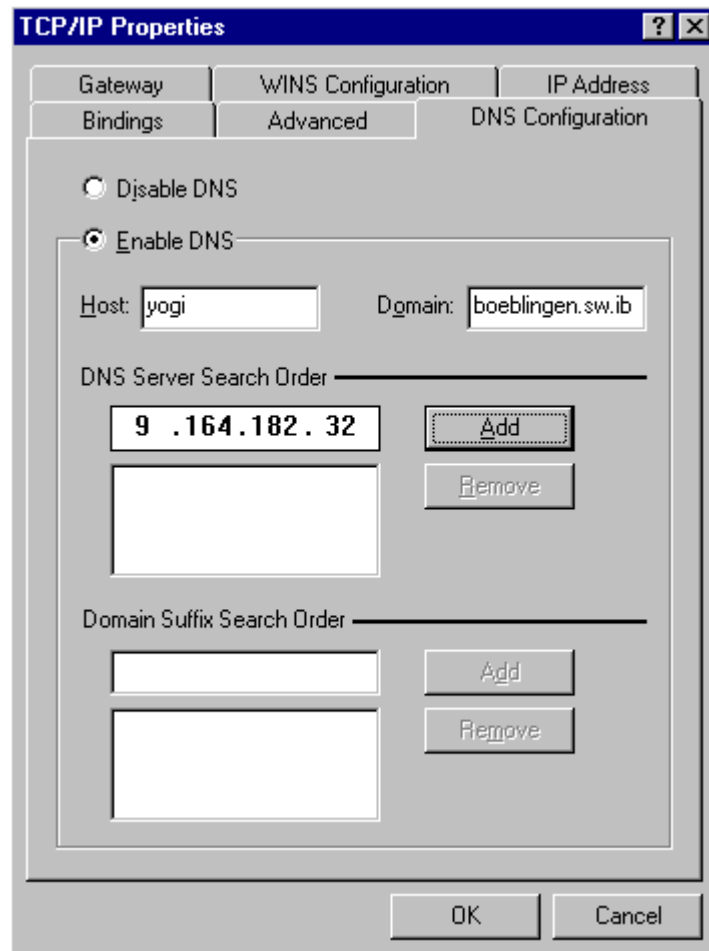
Select the *WINS Configuration* tab of the *TCP/IP Properties* notebook.
Select the *Enable WINS Resolution* radio button.
Type your name server's IP address into the *Primary WINS Server* entry field.
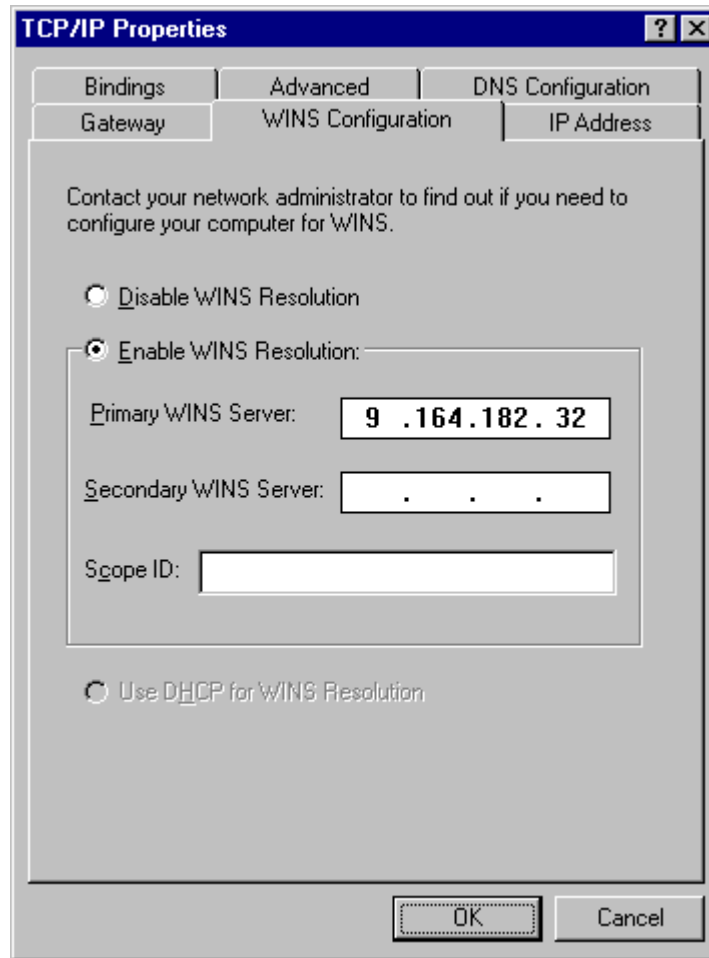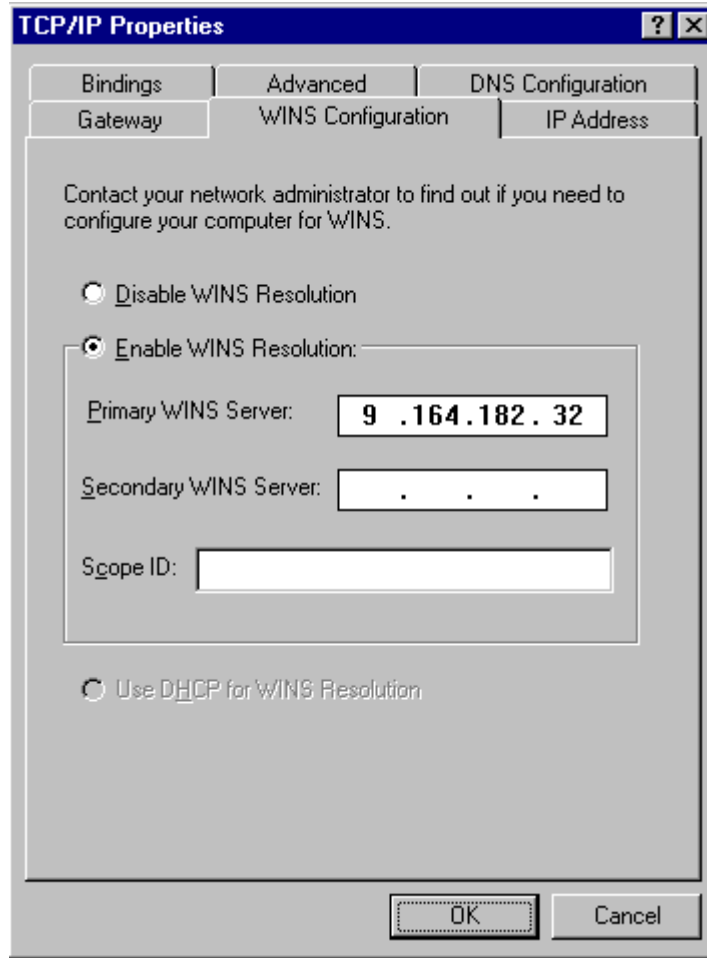
Press the OK button of the TCP/IP Properties notebook.
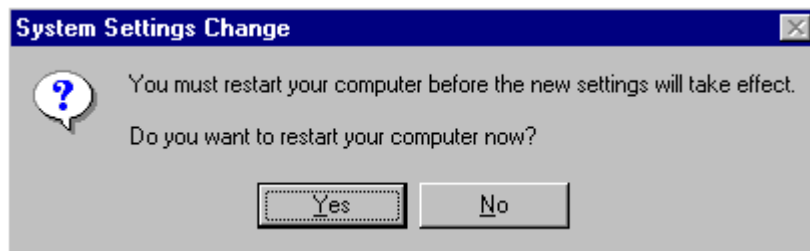
Press the Yes button to shut down and restart your workstation.
TCP/IP installation and configuration is now complete.

Installing HCM

There is no change in the installation procedure of HCM for supporting TCP/IP connectivity. You only need to install the parts of HCM which are necessary for Windows 95 and Windows NT support, as described   in the *Hardware Configuration Manager User's Guide Update for Windows 95/NT Support* of Service Level 2 (available from the HCM home page on the Internet: http://www.ibm.com/s390/hcm/)

Installing HCM on a LAN Resource

If HCM is installed on a shared LAN resource, especially if this LAN resource is only in read access for HCM users, all HCM user should consider specifying the ERRLOGDIR parameter in the [HCM] section of the HCM ini file EEQHCM.INI (see chap. *Installing HCM in a LAN Environment* and *Specifying the Directory for the HCMERR.LOG File* in the *HCM User's Guide*).

Uninstalling HCM

There is no change in the uninstalling procedure of HCM. Please see the *Hardware Configuration Manager User's Guide (SC-1848-02)* **and** the *Hardware Configuration Manager User's Guide Update for Windows 95/NT Support* of HCM 2.4.0 Service Level 2 (available from the HCM home page on the Internet: http://www.ibm.com/s390/hcm/)

Login via TCP/IP

The new HCM login dialog provides a radio button choice for the network protocol to be used: either APPC or TCP/IP. If you choose APPC, you will have to enter an APPC symbolic destination name (and a host userid / password) as in previous HCM releases. If you choose TCP/IP, you will have to enter different login parameters which are explained in detail below.

Note, also for using HCM with TCP/IP, per default the HCM user must have a HCD profile and a HCD trace data set on the host. Per default it is assumed, that these data sets are *userid.HCD.PROFILE* and *userid.HCM.TRACE.*

The HCM Host Server for TCP/IP

When the HCM client is running on your workstation, it needs a server program running on the host. The server program is a TCP/IP program that listens for incoming HCM requests on a specific TCP/IP *port*. These HCM requests are passed to HCD to be executed. The server program - let it be named HCM agent - has to be started before HCM requests are passed. The HCM agent (HCD server) is started by a daemon program (HCM dispatcher) as soon as a HCM login request has been issued. This dispatcher program has been started before the first HCM login request is issued. The dispatcher can run permanently on the OS/390 host. It listens on a specific TCP/IP port and is waiting for incoming HCM login requests. For each HCM login request, the dispatcher checks the passed userid and password for correctness. If userid and password are correct, the dispacher looks for a free IP port. Then it starts an HCM agent program (HCD server program) which will listen to HCM requests on that particular IP port. As soon as the HCM agent is started and ready, the dispatcher will pass the particular IP port to the HCM client. The HCM client will then close the session to the dispatcher and will start a session to the started HCM agent using the passed IP port. When the HCM client has connected the HCM agent, the dispatcher is free again to wait for other incoming HCM login requests on its IP port. As soon as HCM terminates the HCM client server connection, the HCM agent will be terminated and the used port is freed again.

The advantage of having a HCM dispatcher which waits permanently on a specific port for incoming HCM login requests is that each HCM user performs a login request to a fixed port id and does not have to specify a particular job input to start the HCD server. This means, that all HCM users have automatically the same setup, and that this has only to be done once. As the dispatcher is always running all HCM users will always use the same IP port for the login request. HCM will save the IP port across sessions and offer it in the login window. Therefore it has to be specified only once.

The TCP/IP port for the HCM Login requests is determined when the HCM dispatcher is started. If during the start of the dispatcher nothing special is specified, the default TCP/IP port number is 51107. This is also the default port number which is used by HCM for a login request if no port is specified.

The HCM dispatcher creates a job out of a skeleton and submits this job to start the HCM agent. After the HCM agent has been started and is running, the HCM client will communicate with the HCM agent. The HCM client uses the same host name for the communication with the HCM agent as it has been also used for the Login request to the HCM dispatcher. Therefore it is evident, that the HCM agent have to run on a system with the same host name as the HCM dispatcher. This fact might be especially of importance, if your system is within a parallel sysplex. There is the chance to specify the system on which the agent has to run in the provided skeleton
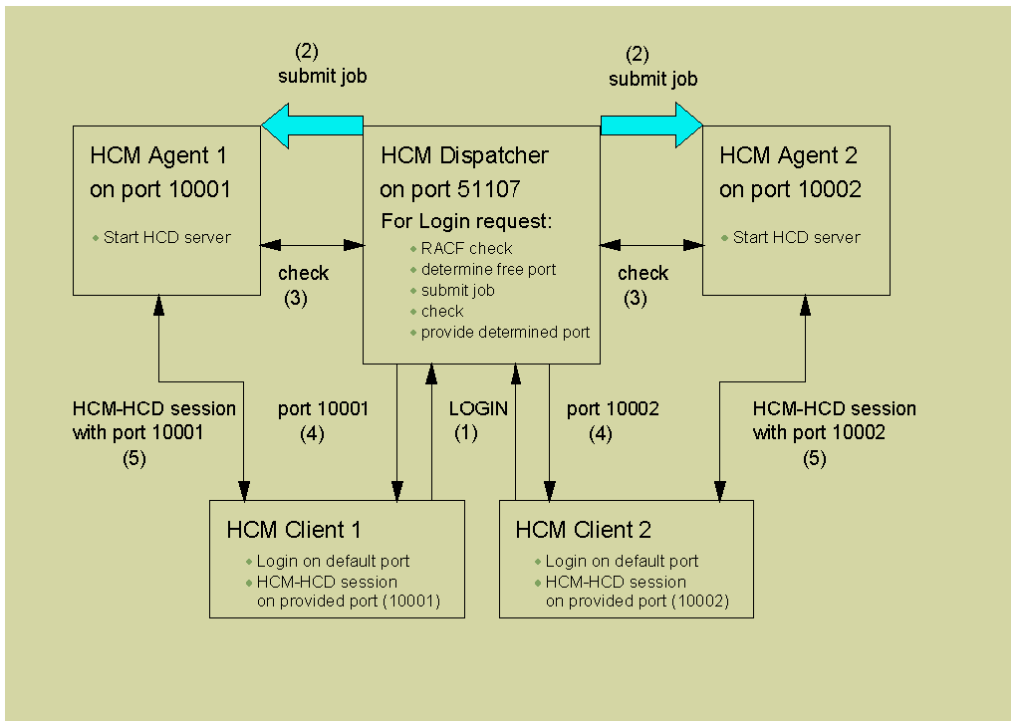
(see also chap. *Skeleton Used for Starting the HCM Agent*).

In the following picture provides an overview of the structure and illustrates the relations between the HCM client, HCM dispatcher and the HCM agent.

There are two methods to start the HCM dispatcher:
- Starting the dispatcher as a started task by using the procedure CBDQDISP provided in the library 'SYS1.PROCLIB'. Please, consider also to start the HCM dispatcher automatically after IPL of your OS/390 system (for example, by using System Automation).
- Starting the dispatcher by submitting a batch job. A sample of a job, which can be used to start the dispatcher is provided as CBDQDISJ in 'SYS1.SAMPLIB'. Please adapt this job, before you submit it.

If you do not want to accept the default port number, you can choose your own by changing the procedure or the sample job to start the dispatcher. Your should inform the HCM users of your choice of he TCP/IP port for the login requests, if you do not want to use the default port number. The HCM client will not accept a port number 0 or port numbers bigger than 65535.

Each HCM session needs its own dedicated server, and each active HCM server needs its own unique TCP/IP port number. The dispatcher looks for a free port number in a specific range. Per default a port number is chosen in the range of 10000 to 65535 for the server. It is possible to determine a different range for the ports to be chosen for the HCM agent during start of the dispatcher.

Depending on the local TCP/IP setup, it could be possible, that a DD statement for **SYSTCPD** is to be included in the procedure to start the HCM dispatcher and in the skeleton for starting the HCM Agent.

Note:
It is necessary that the userid under which the dispatcher is running needs the authority to submit batch jobs. Further note that there must be initiators available to handle submitting batch jobs.

Starting the HCM Dispatcher as a Started Task

There is a procedure CBDQDISP provided in 'SYS1.PROCLIB', which can be used to start the HCM dispatcher as started task.

To do this, you can create a new userid or use an existing one to be associated with the task of the dispatcher. This userid has to have permission to use UNIX System Service.

After the procedure has been adapted to your installation needs, you can start it by using the start command. Please consider to start the HCM dispatcher always after the system has been IPLed. It is further possible to start the dispatcher automatically using System Automation.

```
//CBDQDISP PROC ENV='ENVAR(ICLUI_TRACETO=STDERR)'
//*   JNP='CBD'
//*   LOG=NOLOG
//*   PORT=51107
//*   JSK=+SYS1.PROCLIB(CBDQAJSK)
//*   P0='P0=10000'
//*   P1='P1=65530'
//****************************************************************
//* START HCM-HCD DISPATCHER FOR TCP/IP CONNECTION         *
//*                                                        *
//* IF YOU HAVE A REASON TO CHANGE THE TCP/IP PORT NUMBER  *
//* OF THE DISPATCHER, UN-COMMENT THE PORT=51107           *
//* ABOVE AND SUBSTITUTE A VALID TCP/IP PORT               *
//* NUMBER FOR 51107.  HCM USERS WILL THEN HAVE TO ENTER   *
//* THE CHOSEN PORT NUMBER IN THEIR HCM LOGIN DIALOG.      *
//*                                                        *
//* THE DISPATCHER STARTS A BATCH JOB FOR EACH INCOMING    *
//* HCM LOGIN REQUEST. BY DEFAULT, THIS BATCH JOB WILL GET *
//* A JOBNAME STARTING WITH 'CBD'.                         *
//* IF YOU WOULD LIKE TO HAVE A DIFFERENT PREFIX FOR THE   *
//* JOBNAME, UN-COMMENT THE JNP='CBD' ABOVE AND            *
//* SPECIFY A JOBNAME PREFIX OF YOUR CHOICE INSTEAD OF     *
//* 'CBD'.                                                 *
//* YOU CAN HAVE THE USERID OF THE HCM CLIENT AS PART OF   *
//* THE JOBNAME BY USING THE SPECIAL PATTERN '+U' IN THE   *
//* JNP= PARAMETER:                                        *
//* FOR EXAMPLE, SPECIFYING JNP='X+UY' WILL (FOR A         *
//* USER NAMED 'BMGN') RESULT IN JOBNAMES STARTING         *
//* WITH XBMGNY.                                           *
//* AT MOST 7 CHARACTERS OF THE SPECIFIED JOBNAME PREFIX   *
//* (AFTER USERID SUBSTITUTION) WILL BE USED:              *
//* THE FINAL JOBNAME WILL BE 8 CHARACTERS LONG WITH A     *
//* SUFFIX BUILT FROM THE CHARACTERS 0..9 AND A...Z.       *
//*                                                        *
//* IF YOU WOULD LIKE TO SPECIFY A DIFFERENT JCL SKELETON  *
//* FOR THE HCM AGENT (INSTEAD OF SYS1.PROCLIB(CBDQAJSK)), *
//* UN-COMMENT THE JSK=+... ABOVE AND SPECIFY THE          *
//* DATASET NAME OF YOUR CHOSEN JCL SKELETON               *
//* (USE A '+' PREFIX FOR FULLY QUALIFIED DATASET NAMES)   *
//* (E.G. //   JSK=+USER.PROCLIB(CBDQAJSK)             )   *
//*                                                        *
//* IF YOU WOULD LIKE TO CAPTURE TRACE OUTPUT OF THE       *
```

```
//* DISPATCHER,                                              *
//* UN-COMMENT THE LOG=NOLOG ABOVE AND SPECIFY THE           *
//* DATASET NAME OF YOUR TRACE OUTPUT DATASET                *
//* (USE A '+' PREFIX FOR FULLY QUALIFIED DATASET NAMES)     *
//* (E.G. //   LOG=+USER.CBDQTDIS.LOG                 )      *
//* AND MAKE SURE THE DATASET IS WRITE-PERMITTED TO THE      *
//* DISPATCHER USERID.                                       *
//*                                                          *
//* IF YOU WOULD LIKE TO CHANGE THE DEFAULT PORT RANGE       *
//* SEARCHED BY THE DISPATCHER FOR A FREE AGENT PORT,        *
//* UN-COMMENT THE P0=... P1=... LINES ABOVE AND DEFINE      *
//* THE APPROPRIATE PORT RANGE.  FOR EXAMPLE, TO ALLOW       *
//* ONLY AGENT PORTS IN THE RANGE 50000...50999, SPECIFY     *
//*        P0='P0=50000',                                    *
//*        P1='P1=50999'                                     *
//*                                                          *
//* -------------------------------------------------------  *
//* IF YOU ACTIVATE ANY OF THE PARAMETERS ABOVE DON'T        *
//* FORGET TO APPEND A COMMA IN THE LINE ABOVE TO AVOID      *
//* JCL ERRORS.                                              *
//* -------------------------------------------------------  *
//*                                                          *
//* THE VARIABLE &AV IS FOR IBM INTERNAL TEST USAGE ONLY     *
//*                                                          *
//* DEPENDING ON THE SETUP OF TCP/IP ON THE OS/390 HOST,     *
//* IT COULD BE POSSIBLE THAT A DD STATEMENT FOR SYSTCPD     *
//* IS TO BE INCLUDED.                                       *
//*                                                          *
//************************************************************
//*      LICENSED MATERIALS - PROPERTY OF IBM                *
//*      5647-A01                                            *
//*      (C) COPYRIGHT IBM CORP. 1990, 1998                  *
//*      STATUS = HCS6051                                    *
//************************************************************
//TDIS     EXEC PGM=CBDQTDIS,REGION=48M,TIME=NOLIMIT,
//         PARM='&ENV/&AV L=&LOG P=&PORT JNP=&JNP S=&JSK &P0 &P1'
//JCLOUT   DD   SYSOUT=(A,INTRDR)
//SYSOUT   DD   SYSOUT=*
//SYSPRINT DD   SYSOUT=*
//CEEDUMP  DD   SYSOUT=*
//*
```

The HCM dispatcher submits a job for each incoming HCM login request. Per default the job name of this job starts with *CBD*. If you want that the job names start with something different, you can specify a different string for the beginning of the job name by setting the *JNP* variable. Further it is even possible to specify, that the job name will contain the userid of the HCM user. To do so, specify *+U* and the dispatcher will substitute the *+U* with the requester's userid. It is also possible to prefix the userid or to append a string to the userid. For Example, a *X+UY* for a passed userid *BMGN* would result in *XBMGNY* for the beginning of the job name. Note, the dispatcher will not accept more than 7 digits for the beginning of a job name. Strings longer than 7 digits will be truncated. The dispatcher will generate a job name using the *JNP* variable and fill it up to 8 digits. If the JNP variable contains exactly 3 digits, the job name will be filled up to 8 digits by using parts of the port address of the dispatcher and parts of the port address of the

HCM client, which will be started. If the *JNP* string has not 3 digits, it will be filled up to 8 digits by using 0...9 and A...Z.

If there is any reason to use another port than 51107 on which the dispatcher listens for incoming HCM Login requests, you can specify your port by setting the *PORT* variable. Further you can also use a different range of ports, in which the dispatcher will determine a free port to be used by the HCM agent. In this case, set the variables *P0* and *P1* to appropriate values. Note, ports bigger than 65535 are not allowed. Further it is possible to specify another skeleton to be used to start the HCM agent.

For special cases (debugging or better control), the dispatcher can write logging information into a data set. In this case, you would have to change the *LOG* variable. (Ensure that the dispatcher has write access to that data set. For details, see chap. *Special Setup Considerations*.)

Note, if you un-comment all the parameters (*JNP, LOG, PORT, JSK,...*) in the above procedure and if you specify long data set names, you might get an error, as it is possible, that the total length of the passed PARM field gets exceeded:

```
IEF642I EXCESSIVE PARAMETER LENGTH IN THE PARM FIELD
```

Note, it is evident, that the userid under which the HCM dispatcher is running, must have the permission to submit batch jobs.

Creating a Userid for Running the Dispatcher as Started Task

If it is desired to run the dispatcher as a started task, you can create a userid for it. In the following, you will find an example how you could proceed.

1. Create a userid to be used as started task for the procedure CBDQDISP. This userid must be enabled to use UNIX System Services.
2. Define the userid to be used for the started task procedure CBDQDISP.
3. Refresh RACF.

Note, it is **not** necessary that the userid gets a superuser!

Below, you will find an example, how a userid can be enabled to UNIX System Services.

```
//*MODLOG RACF ADD STARTED TASK CBDQDISP
//*
//ADDUSER  EXEC PGM=IKJEFT01
//*
//SYSTSPRT DD SYSOUT=*
//SYSUADS  DD DISP=SHR,DSN=SYS1.UADS
//SYSLBC   DD DISP=SHR,DSN=SYS1.BRODCAST
//SYSTSIN  DD *
   AU CBDQDISP NAME('STARTED-T. M. GNIRSS') OWNER(STCGROUP) +
      DFLTGRP(STCGROUP) +
      OMVS(HOME(/) PROGRAM(/bin/sh) UID(4711))
```

```
//*
//DEFRACF  EXEC PGM=IKJEFT01
//*
//SYSTSPRT DD SYSOUT=*
//SYSUADS  DD DISP=SHR,DSN=SYS1.UADS
//SYSLBC   DD DISP=SHR,DSN=SYS1.BRODCAST
//SYSTSIN  DD *
   RDEF STARTED CBDQDISP.*    STDATA(USER(CBDQDISP) GROUP(STCGROUP))
//*
//REFRESH  EXEC PGM=IKJEFT01
//*
//SYSTSPRT DD SYSOUT=*
//SYSUADS  DD DISP=SHR,DSN=SYS1.UADS
//SYSLBC   DD DISP=SHR,DSN=SYS1.BRODCAST
//SYSTSIN  DD *
   SETR REFRESH RACLIST(STARTED) GENCMD(*) GENERIC(*)
/*
```

Starting the HCM Dispatcher as a Batch Job

There is a sample of job CBDQDISJ provided in 'SYS1.SAMPLIB', which can be used to start
the HCM dispatcher as batch job.

To do this, you have to adapt the sample job and to use the submit command. Note, the userid
under which the dispatcher runs must have permission to use UNIX System Services.
This job has to be started before the first HCM login request occurs.

```
//<JOBNAM> JOB (<ACCT>),'<USER>',CLASS=A,REGION=48M,
//         MSGCLASS=0,NOTIFY=<USER>,TIME=NOLIMIT
//* FOLLOWING LINE CAN BE USED FOR JES2 SYSTEMS (IF NECESSARY)
//* /*JOBPARM SYSAFF=*
//* FOLLOWING LINE CAN BE USED FOR JES3 SYSTEMS (IF NECESSARY)
//* //*MAIN SYSTEM=XXXX
//*
//DEFENV    SET ENV='ENVAR(ICLUI_TRACETO=STDERR)'
//*DEFJNP   SET JNP='CBD'
//*DEFLOG   SET LOG=NOLOG
//*DEFPORT  SET PORT=51107
//*DEFJSK   SET JSK=+SYS1.PROCLIB(CBDQAJSK)
//*DEFP0    SET P0='P0=10000'
//*DEFP1    SET P1='P1=65530'
//************************************************************
//* SAMPLE BATCH JOB TO                                     *
//* START HCM-HCD DISPATCHER FOR TCP/IP CONNECTION          *
//*                                                         *
//* IF YOU WANT TO CONTROL, ON WHICH SYSTEM THE HCM         *
//* DISPATCHER SHOULD RUN, YOU CAN USE THE SYSAFF           *
//* PARAMETER (FOR JES2) OR THE SYSTEM PARAMETER            *
//* (FOR JES3). THIS IS ESPECIALLY OF INTEREST IN A         *
//* PARALLEL SYSPLEX ENVIRONMENT!                           *
//*                                                         *
//* BEFORE USING THIS SAMPLE JOB, PLEASE SUBSTITUTE A       *
```

```
//* VALID JOB NAME FOR <JOBNAM>,  SUBSTITUTE ACCOUNTING    *
//* INFORMATION FOR <ACCT>, AND SUBSTITUTE YOUR USER ID    *
//* FOR <USER>.                                            *
//*                                                        *
//* THE DISPATCHER STARTS A BATCH JOB FOR EACH INCOMING    *
//* HCM LOGIN REQUEST. BY DEFAULT, THIS BATCH JOB WILL GET *
//* A JOBNAME STARTING WITH 'CBD'.                         *
//* IF YOU WOULD LIKE TO HAVE A DIFFERENT PREFIX FOR THE   *
//* JOBNAME, UN-COMMENT THE JNP='CBD' ABOVE AND            *
//* SPECIFY A JOBNAME PREFIX OF YOUR CHOICE INSTEAD OF     *
//* 'CBD'.                                                 *
//* YOU CAN HAVE THE USERID OF THE HCM CLIENT AS PART OF   *
//* THE JOBNAME BY USING THE SPECIAL PATTERN '+U' IN THE   *
//* JNP= PARAMETER:                                        *
//* FOR EXAMPLE, SPECIFYING JNP='X+UY' WILL (FOR A         *
//* USER NAMED 'BMGN') RESULT IN JOBNAMES STARTING         *
//* WITH XBMGNY.                                           *
//* AT MOST 7 CHARACTERS OF THE SPECIFIED JOBNAME PREFIX   *
//* (AFTER USERID SUBSTITUTION) WILL BE USED:              *
//* THE FINAL JOBNAME WILL BE 8 CHARACTERS LONG WITH A     *
//* SUFFIX BUILT FROM THE CHARACTERS 0..9 AND A...Z.       *
//*                                                        *
//* IF YOU HAVE A REASON TO CHANGE THE TCP/IP PORT NUMBER  *
//* OF THE DISPATCHER, UN-COMMENT THE SET PORT=51107       *
//* ABOVE AND SUBSTITUTE A VALID TCP/IP PORT               *
//* NUMBER FOR 51107.  HCM USERS WILL THEN HAVE TO ENTER   *
//* THE CHOSEN PORT NUMBER IN THEIR HCM LOGIN DIALOG.      *
//*                                                        *
//* IF YOU WOULD LIKE TO SPECIFY A DIFFERENT JCL SKELETON  *
//* FOR THE HCM AGENT (INSTEAD OF SYS1.PROCLIB(CBDQAJSK)), *
//* UN-COMMENT THE JSK=+... ABOVE AND SPECIFY THE          *
//* DATASET NAME OF YOUR CHOSEN JCL SKELETON               *
//* (USE A '+' PREFIX FOR FULLY QUALIFIED DATASET NAMES)   *
//* (E.G. //   JSK=+USER.PROCLIB(CBDQAJSK)             )   *
//*                                                        *
//* IF YOU WOULD LIKE TO CAPTURE TRACE OUTPUT OF THE       *
//* DISPATCHER,                                            *
//* UN-COMMENT THE LOG=NOLOG ABOVE AND SPECIFY THE         *
//* DATASET NAME OF YOUR TRACE OUTPUT DATASET              *
//* (USE A '+' PREFIX FOR FULLY QUALIFIED DATASET NAMES)   *
//* (E.G. //   LOG=+USER.CBDQTDIS.LOG                  )   *
//* AND MAKE SURE THE DATASET IS WRITE-PERMITTED TO YOUR   *
//* USERID.                                                *
//*                                                        *
//* IF YOU WOULD LIKE TO CHANGE THE DEFAULT PORT RANGE     *
//* SEARCHED BY THE DISPATCHER FOR A FREE AGENT PORT,      *
//* UN-COMMENT THE P0=... P1=... LINES ABOVE AND DEFINE    *
//* THE APPROPRIATE PORT RANGE.  FOR EXAMPLE, TO ALLOW     *
//* ONLY AGENT PORTS IN THE RANGE 50000...50999, SPECIFY   *
//*      //DEFP0 SET P0='P0=50000'                         *
//*      //DEFP1 SET P1='P0=50999'                         *
//*                                                        *
//* THE VARIABLE &AV IS FOR IBM INTERNAL TEST USAGE ONLY   *
//*                                                        *
//* DEPENDING ON THE SETUP OF TCP/IP ON THE OS/390 HOST,   *
//* IT COULD BE POSSIBLE THAT A DD STATEMENT FOR SYSTCPD   *
//* IS TO BE INCLUDED.                                     *
```

```
//*                                                          *
//***********************************************************
//***********************************************************
//*        LICENSED MATERIALS - PROPERTY OF IBM             *
//*        5647-A01                                         *
//*        (C) COPYRIGHT IBM CORP. 1990, 1998               *
//*        STATUS = HCS6051                                 *
//***********************************************************
//*
//*
//TDIS     EXEC PGM=CBDQTDIS,
//         PARM='&ENV/&AV L=&LOG P=&PORT JNP=&JNP S=&JSK &P0 &P1'
//JCLOUT   DD   SYSOUT=(A,INTRDR)
//SYSOUT   DD   SYSOUT=*
//SYSPRINT DD   SYSOUT=*
//CEEDUMP  DD   SYSOUT=*
//*
```

The HCM dispatcher submits a job for each incoming HCM login request. Per default the job name of this job stars with *CBD*. If you want that the job names start with something different, you can specify a different string for the beginning of the job name by setting the *JNP* variable. Further it is even possible to specify, that the job name will contain the userid of the HCM user. To do so, specify *+U* and the dispatcher will substitute the *+U* with the requester's userid. It is also possible to prefix the userid or to append a string to the userid. For Example, a *X+UY* for a passed userid *BMGN* would result in *XBMGNY* for the beginning of the job name. Note, the dispatcher will not accept more than 7 digits for the beginning of a job name. Strings longer than 7 digits will be truncated. The dispatcher will generate a job name using the *JNP* variable and fill it up to 8 digits. If the *JNP* variable contains exactly 3 digits, the job name will be filled up to 8 digits by using parts of the port address of the dispatcher and parts of the port address of the HCM client, which will be started. If the JNP string has not 3 digits, it will be filled up to 8 digits by using 0...9 and A...Z.

If there is any reason to use another port than 51107 on which the dispatcher listens for incoming HCM Login requests, you can specify your port by setting the *PORT* variable. Further you can also use a different range of ports, in which the dispatcher will determine a free port to be used by the HCM agent. In this case, set the variables *P0* and *P1* to appropriate values. Note, ports bigger than 65535 are not allowed. Further it is possible to specify another skeleton to be used to start the HCM agent.

To get Job output for debugging purposes, it might be necessary, that you adapt the *CLASS* and *MSGCLASS* parameter in the job card.

Note, if you un-comment all the lines, where the variables can be set (*JNP, LOG, PORT, JSK,...*) in the above batch job and if you specify long data set names, you might get an error, as it is possible, that the total length of the passed PARM field gets exceeded:

```
IEF642I EXCESSIVE PARAMETER LENGTH IN THE PARM FIELD
```

Note, it is evident, that the userid under which the HCM dispatcher is running, must have the permission to submit batch jobs.

Stopping the HCM Dispatcher
To stop the HCM dispatcher, use the *cancel* command. (The *stop* command is not supported.)

Skeleton Used for Starting the HCM Agent

There is a sample of skeleton CBDQAJSK provided in 'SYS1.PROCLIB', which is used per default by the HCM dispatcher to build up a job, which is submitted to start the HCM agent.

```
//<JOBNAM> JOB <ACCT>,'<PRGNAM>',CLASS=<JCLASS>,REGION=<REGION>,
//          MSGCLASS=<MCLASS>,TIME=NOLIMIT,
//          USER=<USER><PASSWD><NOTIFY>
//* THE FOLLOWING LINE IS FOR JES2 SYSTEMS (HERE: USED AS DEFAULT)
/*JOBPARM SYSAFF=*
//* THE FOLLOWING LINE IS FOR JES3 SYSTEMS (HERE: IT IS DISABLED)
//* //*MAIN SYSTEM=(<TSYS>)
//*
//DEFENV   SET ENV='ENVAR(ICLUI_TRACETO=STDERR)'
//DEFPORT  SET PORT='<PORT>'
//DEFTIME  SET T='<TIMEOUT>'
//DEFLOG   SET LOG='<ALOGDSN>'
//DEFAV    SET AV='<AV>'
//DEFTIME  SET TIMESTMP='<TSTAMP>'
//*
//*************************************************************
//* HCM AGENT JOB SKELETON FOR HCM TCP/IP HOST CONNECTION    *
//*                                                          *
//* BEFORE USING THIS SKELETON, PLEASE ENSURE THAT THE       *
//* JOB WILL RUN ON THE LOCAL SYSTEM:                        *
//*   FOR JES2 SYSTEMS:                                      *
//*     ADAPT THE JOBPARM SYSAFF PARAMETER (IF NECESSARY)    *
//*   FOR JES3 SYSTEMS:                                      *
//*     COMMENT THE LINE FOR JES2 AND UNCOMMENT THE LINE     *
//*     FOR JES3. THEN ADAPT THE MAIN SYSTEM PARAMETER.      *
//*     IF YOU DO NOT MODIFY <TSYS> IN THE MAIN STATEMENT    *
//*     THEN THE DISPATCHER WILL SUBSTITUE THE LOCAL SYSTEM  *
//*     NAME FOR <TSYS>.                                     *
//*                                                          *
//* YOU SHOULD ALSO SUBSTITUTE ACCOUNTING INFORMATION FOR    *
//* '<ACCT>' ABOVE, SO THAT INDIVIDUAL HCM USERS DO NOT HAVE *
//* TO. IF YOU LEAVE '<ACCT>' AS A SUBSTITUTABLE PARAMETER,  *
//* HCM USERS WILL HAVE TO SPECIFY THEIR PERSONAL            *
//* ACCOUNTING INFORMATION IN THE SECTION [CBDQAGNT] OF      *
//* THEIR EEQHCM.INI FILE ON THE PWS, E.G.,                  *
//*       [CBDQAGNT]                                         *
//*       AJCLACCT=(DE03160,,)                               *
//*                                                          *
//* ALL OTHER SUBSTITUTABLE PARAMETERS IN THE SKELETON       *
//* WILL BE SUPPLIED BY THE DISPATCHER.                      *
//*                                                          *
```

```
//* IF YOU SUBSTITUTE THE VALUES                          *
//* <JCLASS> (JOB CLASS), <REGION>, OR <MCLASS> (MESSAGE  *
//* CLASS), THEN INDIVIDUAL HCM USERS CAN NO LONGER CONTROL *
//* THESE VALUES FROM WITHIN THEIR EEQHCM.INI FILES.       *
//*                                                        *
//* THE VARIABLE &AV IS FOR IBM INTERNAL TEST USAGE ONLY   *
//*                                                        *
//* DEPENDING ON THE SETUP OF TCP/IP ON THE OS/390 HOST,   *
//* IT COULD BE POSSIBLE THAT A DD STATEMENT FOR SYSTCPD   *
//* IS TO BE INCLUDED.                                     *
//*                                                        *
//***********************************************************
//*      LICENSED MATERIALS - PROPERTY OF IBM              *
//*      5647-A01                                          *
//*      (C) COPYRIGHT IBM CORP. 1990, 1998                *
//*      STATUS = HCS6051                                  *
//***********************************************************
//*
//AGNT     EXEC PGM=<PROG>,
//         PARM='&ENV/P=&PORT T=&T L=&LOG &AV'
//STEPLIB  DD DISP=SHR,DSN=SYS1.SCBDHENU
<STEPLIB>
//SYSOUT   DD <SYSOUT>
//SYSPRINT DD <SYSPRINT>
//CEEDUMP  DD <CEEDUMP>
<HCDPROF>
<HCDTRACE>
```

This skeleton can be adapted according your installation needs. Especially you may want to specify accounting information in the job card of the skeleton, if in your installation accounting information is required. Note, if accounting information is required, and there is no accounting information set in the skeleton, each HCM user would have to provide this information by a manually entry via the HCM ini file. For all other substitutable parameter the HCM dispatcher can provide default values.

In any case, please check, whether you have to adapt this skeleton for your environment regarding the *JOBPARM SYSAFF* parameter for *JES2* or *MAIN SYSTEM* parameter for *JES3*. It is necessary, that the job will be executed on the system with the system name specified during HCM client loging to the HCM dispatcher.

Further it is possible, that a HCM user takes this skeleton, makes a copy of it and specify values for his personal needs. To use this private copy, the HCM user needs an entry in the EEQHCM.INI file to tell the dispatcher not to use the default skeleton, but the user specified skeleton.

For tailoring a specific environment, please see chapter *Special Setup Considerations*.

Login via TCP/IP

After starting HCM, enter your host *Username* and *Password* in the HCM *Login* dialog.
Then select the *TCP/IP* radio button as your *Host Connection* protocol.

Type the TCP/IP host name of your HCM host into the *Host Name* entry field.

The host name can be given either
- in DNS notation as shown above, or
- as a short host name like **boesys1** defined in your *etc\hosts* file
  (the *etc\hosts* file typically resides in *c:\winnt\system32\drivers\etc\hosts*), or
- as a TCP/IP address in dotted decimal notation like **9.164.156.217**

Using More than One TCP/IP Stack

If you are using more than one TCP/IP stack in your installation, please ensure, that dispatcher
and agent are using the same TCP/IP stack. You can determine the TCP/IP stack by the allocation
of TCPD.DATA via the DD statement SYSTCPD. Both, dispatcher and agent must have the
same allocation for SYSTCPD (adapt the job/procedure which is used for the start of the
dispatcher and adapt the skeleton, which is used to start the agent).

Special Setup Considerations

The following allows special individual adaptation for the setup. In general, it is not necessary to use these parameters. They are provided for special purpose.

Usually, only *AJCLACCT* or *RTIMEOUT* for *[CBDQAGNT]* are of interest for common purpose.

HCM Client: Configurable Login Parameters

The only needed login parameter is the TCP/IP hostname of the MVS host running the HCM dispatcher.
If no port is specified (port = 0), the client will use the pre-configured default port number 51107 to contact the HCM dispatcher.

During HCM login the HCM client reads the HCM Windows eeqhcm.ini file, which resides in a Windows system directory (e.g., c:\winnt\eeqhcm.ini) to use optional parameters for the login request.

The following parameters can be defined for the sections [COMRDTS], [CBDQTDIS] and [CBDQAGNT]:

[COMRDTS]
AGENTLOG=<path-of-client-logfile>
    This activates writing of a HCM client log to the specified path.
    The client log can be helpful in diagnosing HCM login problems.
    Example: AGENTLOG=c:\hcm\client.log

[CBDQTDIS]
RTIMEOUT=<seconds>
    This defines the number of seconds the HCM client waits for an answer from
    the HCM dispatcher after sending a HCM login request before reporting a
    timeout error. The default is RTIMEOUT=90. On slow networks or when the
    priority of the dispatcher is low, this timeout value may have to be increased.

[CBDQTDIS]
ATIMEOUT=<seconds>
    The HCM dispatcher starts a new HCM agent by writing the agent job
    to the JES internal reader. It then attempts to contact the new agent
    to verify successful startup. The ATIMEOUT parameter specifies the
    number of seconds the dispatcher will wait for the agent to start

before reporting a failure to the waiting HCM client.
The default is ATIMEOUT=60. If the JES input queue is slow in starting
the submitted agent job, this value may have to be increased.

[CBDQAGNT]
AJCLSKEL=<HCM-agent-skeleton-JCL-dataset>
    This overwrites the default JCL skeleton used by the HCM dispatcher
    to generate the HCM agent job.
    This can be used, for example, to start a HCM agent with an experimental
    version of the HCDPROF data set (instead of the default &SYSUID..HCD.PROFILE).

    Fully qualified MVS data set names must be specified with two pairs of single
    quotes, e.g.: AJCLSKEL="TEST.CBDQAGNT.JST"

[CBDQAGNT]
AJCLASS=<job class of HCM agent>
    This overwrites the default job class (0) of the generated HCM agent job.
    It can be used to save the job output of the HCM agent by specifying,
    for example, AJCLASS=A.

[CBDQAGNT]
AMCLASS=<agent job message class>
    This defines the message class parameter in the JOB statement
    of the generated agent JCL. The default message class is "0".
    It may be necessary to specify a different message class in order
    to obtain a job log of the HCM agent. Example: AMCLASS=H.

[CBDQAGNT]
RTIMEOUT=<seconds>
    This defines the number of seconds the HCM client waits for an answer from
    the HCM agent after sending a request before reporting a timeout error.
    The default is RTIMEOUT=600. For long-running HCD requests, this timeout
    value may have to be increased.

[CBDQAGNT]
ATIMEOUT=<seconds>
    When a new HCM agent is started, it is first contacted by the HCM dispatcher.
    After sending a ready notification to the dispatcher, the agent then waits
    to be contacted by the HCM client. If the agent is not contacted by the client
    after the specified timeout value (e.g., the HCM user accidentally hits power-off

on the PC), the agent will terminate.
The default is ATIMEOUT=60. On slow networks, this value may have to be increased.

[CBDQAGNT]
AJCLACCT=<accounting information>
   This defines the accounting information parameter in the JOB statement
   of the generated agent JCL. If the installation requires accounting
   information, it may be necessary to supply this parameter if the default
   accounting information supplied by the HCM dispatcher is invalid for the
   individual HCM user. Example: AJCLACCT=(DE03160,,)

[CBDQAGNT]
AREGION=<agent job region size>
   This defines the region parameter in the JOB statement
   of the generated agent JCL. The default region size is AREGION=128M.

[CBDQAGNT]
ALOGDSN=<name of agent log dataset>
   This defines the name of a log dataset written by the HCM agent.
   The default is that no log output is written.
   Log output may be helpful in diagnosing communication problems
   between HCM client and HCM agent.
   Example 1: ALOGDSN=CBDQAGNT.LOG
          [writes agent log as CBDQAGNT.LOG under the user's HLQ]
   Example 2: ALOGDSN="TEMP.CBDQAGNT.LOG"
          [writes agent log as 'TEMP.CBDQAGNT.LOG' (fully qualified)]
   Example 3: ALOGDSN=DD:SYSOUT
          [writes agent log to the job log output]

[CBDQAGNT]
HCDPROF=<DD specification of HCD profile dataset>
   This defines the DD specification of the HCD profile used by the HCM agent.
   The default is:
   HCDPROF="//HCDPROF DD DISP=SHR,DSN=&SYSUID..HCD.PROFILE"
   Specifying this parameter allows the use of an alternate HCD profile,
   e.g., HCDPROF="//HCDPROF DD DISP=SHR,DSN=&SYSUID..MYHCD01.PROFILE"

[CBDQAGNT]
HCDTRACE=<DD specification of HCD trace dataset>
   This defines the DD specification of the HCD trace dataset used by the HCM agent.

The default is:
HCDTRACE="//HCDTRACE DD DISP=SHR,DSN=&SYSUID..HCM.TRACE"
Specifying this parameter allows the use of an alternate HCD trace dataset,
e.g., HCDTRACE="//HCDTRACE DD DISP=SHR,DSN=&SYSUID..MYHCM01.TRACE"

[CBDQAGNT]
ASTEPLIB=<name of steplib data set>
    This defines a data set name which is appended to the STEPLIB concatenation.
    Per default, there is no additional steplib data set.
    Example: ASTEPLIB=BMGN.MY.LOADLIB

HCM Ini file: EEQHCM.INI

The HCM ini file EEQHCM.INI is created after the first successful HCM session. Usually, this is sufficient. There might be situations, when you already need an ini file for the first Login request. In this case, you can simply use an editor and create manually the ini file with the desired content. For example (c:\winnt\eeqhcm.ini):

```
[HCM]
ERRLOGDIR=c:\HCMLOG
[CBDQAGNT]
RTIMEOUT=6000
AJCLACCT=(DE03160,,)
[COMRDTS]
AGENTLOG=c:\hcmlog\tstLOG.LOG
[COMRHOM]
RHOMLOG=1
RHOM_EXIT_LOG=1
FORCELOG=0
```

Note: For the parameter *ERRLOGDIR* see *HCM User's Guide*. The parameters *AGENTLOG*, *RHOMLOG*, *RHOM_EXIT_LOG*, and *FORCELOG* are for for IBM debugging purposes. Include these parameters only on request of the IBM service team.

Note: If you get timeout messages (like *EEQX305E* or *EEQX414E*) during trying to establish a HCM-HCD session for the first time, increasing time-out values in the ini file might not help: Usually, the used defaults are sufficient - the problem might be based in the TCP/IP configuration/customization (LE environment, DNS names server,...). Please, check at first the reason for the timeout, before you increase the defaults. See chap. *Troubleshooting* for more details.

Sample Road Map for Installation and Setup

In the following you will find a sample for an order of possible actions for a HCM TCP/IP installation and setup.

- Install HCD PTFs on the OS/390 host
- Check, whether you can accept the default port number 51107.
- Decide, whether the HCM dispatcher should run as a started task or should be started as a batch job.
- Prepare a userid for the HCM dispatcher:
    - ✦ If the dispatcher should run as a started task, provide a userid for the procedure *CBDQDISP*. Do not forget to provide UNIX System Services permission for this userid.
    - ✦ If the dispatcher should run as a batch job, use a userid with UNIX System Services permission for the job.
- If necessary adapt the procedure *CBDQDISP*, or the batch sample job *CBDQDISJ*: You might want change the default port number for the dispatcher, or, for example, you might also want to change the region size.
- Ensure, that TCP/IP is up and running.
- Start the dispatcher.
- Ensure, that the dispatcher will always be running when a HCM user needs access to HCD server (administrative directives or automatically start after IPL by System Automation).
- Adapt the skeleton *CBDQAJSK* for starting the HCM Agent according your installation needs. Especially, consider to provide accounting information in the skeleton. This avoids the need, that individual HCM users have to provide this information manually. You might also want set a specific message and job class. Further, ensure, that the HCM agent will run on the same system as the dispatcher (same host name - especially this is important for systems in a parallel sysplex environment): For JES2 systems you may want to adapt the *SYSAFF* parameter, for JES3 systems, you may want to adapt the *MAIN SYSTEM* parameter.
- If necessary, inform the HCM users about the dispatcher port number (if not default value).
- On the workstation side, ensure that the TCP/IP protocol support is installed and configured.
- Ensure, that the HCM user has a HCD profile and a trace data set allocated.
- Invoke HCM (HCM client) with the appropriate host name and port number.
- Check, whether you can successfully establish a HCM-HCD session.

Host Messages

The following messages can be issued by either the HCM dispatcher or the HCM agent on the host. Theses messages will be written to the sdsf console (issued with as WTO message).

CBDG980I CBDQTDIS -- HCM dispatcher starting, port = *<port>*
Explanation: The HCM dispatcher is starting and listening for start-agent requests on the specified TCP/IP port number.

CBDG981E CBDQTDIS -- can't listen on port *<port>*
Explanation: The HCM dispatcher can't bind to the specified port and will terminated. The port number may be in use by another program.
Operator Response: Restart the HCM dispatcher, possibly specifying a different (available) port number.

CBDG982I CBDQTDIS -- HCM dispatcher terminating.
Explanation: The HCM dispatcher is terminating.

CBDG983I CBDQTDIS -- start-agent request for user *<user_id>* received.
Explanation: The HCM dispatcher received an HCM start-agent request from a client for the specified user id.

CBDG984I CBDQTDIS -- HCM agent started for user *<user_id>*, port *<port>*.
Explanation: The HCM dispatcher successfully started an HCM agent for the specified client user id. The new HCM agent instance is listening on the specified TCP/IP port number.

CBDG985I CBDQTDIS -- HCM validation for client user id *<user_id>* failed.
Explanation: The HCM dispatcher could not successfully validate the HCM start-agent request for the specified user. Either the dispatcher is not running as an authorized program, or the login information specified by the client is invalid.
Operator Response: Make sure, that the HCM dispatcher is being run from an authorized library.
User Response: Check the spelling of your user id and password. Also check whether your TSO password is expired. Then, retry the HCM client login.

CBDG986I CBDQAGNT -- HCM agent starting, port = *<port>*
Explanation: An instance of the HCM agent was started successfully and is expecting HCM requests on the specified TCP/IP port number.

CBDG987I *<module_name> <variable_text>*
Explanation: The message text of this message provides additional information to an already issued message (one of CBDG980I - CBDQG986I). The content of this message depends on the situation.

HCM Client: TCP/IP Related Messages

EEQX100E: host communication error --
The HCM dispatcher on host <name> may be busy or
not listening on port <port#>

EEQX102E: host communication error --
The hostname <name> is unknown:
please verify that the hostname is spelled correctly;
if the spelling is correct, please try to ping the host

EEQX305E: host communication error --
timeout waiting for HCM dispatcher reply,
increasing <eeqhcm.ini[CBDQTDIS]rtimeout>
(currently <nn> seconds) might help"

EEQX401E: host communication error --
security validation failed:
please verify the spelling of your HCM user id: <id>

EEQX402E: host communication error --
security validation failed:
it appears that the password is invalid (or expired) for user id <id>

EEQX405E: host communication error --
no available server port found for new HCM agent,
widening <eeqhcm.ini[CBDQAGNT]portmin..portmax> might help

EEQX406E: host communication error --
HCM dispatcher can't open the JCL skeleton for the HCM agent job:
the dispatcher should to be re-configured to access an existing and
readable JCL skeleton.
Specifying <eeqhcm.ini[CBDQAGNT]ajclskel>=<skeleton dataset name>
might be an interim solution.

EEQX407E: host communication error --
the host HCM dispatcher could not write the HCM agent JCL file,
specifying [CBDQAGNT]ajclofn=<writable dataset>
(currently <name>) might help",

EEQX410E: host communication error --
HCM dispatcher could not verify successful start of new HCM agent,
please check agent job log / agent trace on host for startup errors.

EEQX414E: host communication error --
> HCM dispatcher timed out waiting for new HCM agent,
> increasing <eeqhcm.ini[CBDQTDIS]atimeout>
> (currently <nn> seconds) might help.
> Also: check agent job log / agent trace on host for startup errors.

EEQX415E: host communication error --
> HCM dispatcher can't do security validations:
> please verify that the dispatcher is running as an
> APF authorized program

EEQX416E: host communication error --
> HCM dispatcher received an invalid request package:
> the HCM client request may have been corrupted during transfer,
> please retry

EEQX500E: host communication error --
> I/O exception waiting for HCM dispatcher reply:
> the connection to the HCM dispatcher was interrupted,
> please verify that the dispatcher is still running

EEQX501E: host communication error --
> exception receiving HCM agent reply,
> HCM client-agent connection may be lost

EEQX502E: host communication error --
> timeout waiting for HCM agent's reply to client login request,
> increasing <eeqhcm.ini[CBDQAGNT]rtimeout>
> (currently <nn> seconds) might help

EEQX503E: host communication error --
> timeout waiting for HCM agent reply,
> please verify that the HCM agent is still running.
> Increasing <eeqhcm.ini[CBDQAGNT]rtimeout>
> (currently %d seconds) might help

Troubleshooting

Common HCM Login Problems with TCP/IP

This section describes the most common problems during HCM login via TCP/IP. In general, ensure, that the HCM client can establish contact to the HCM dispatcher.

If any problems occur, check whether the host name which you have specified can be resolved your name server and whether TCP/IP is available:
You should first check that you specified the host name correctly in the HCM login dialog. If the host name is correct, see if you can reach your host from the command line:
open an MS-DOS command window and enter the command:
     ping <hostname>
(substitute your HCM host name for **<hostname>**).

If the **ping** command reports an error, make sure that you can reach your TCP/IP name server; enter the command:
ping <nameserver>,
specifying your name server's IP address in dotted-decimal notation (e.g., **ping 9.164.182.32**).

If this **ping** command also reports an error, make sure that you specified the correct IP address for the name server (provided by your network administrator) in your Windows TCP/IP configuration notebook. If the name server IP address appears to be configured correctly, you should contact your network administrator to verify that all your TCP/IP configuration parameters are correct (router IP address, subnet mask, your workstation's IP address).

If you have a problem with the HCM agent, in some cases, it is helpful to examine the job output to identify possible reasons of an error (for example to examine a JCL error). To get a job output it might be necessary to change the message class or job class: You can adapt the skeleton, which is used by the HCM dispatcher to setup the job for the HCM agent, or you might want to do this by specifying an entry in the EEQHCM.INI file (see section *HCM Client: Configurable Login Parameters*).

A First Small Check
If you can start the HCM Dispatcher successfully, you could check at first, whether the Dispatcher can perform some of his basic function, before you even try to establish a HCM-HCD session: It is a good idea to test, whether you can establish a TCP/IP connection from a PWS to the desired OS/390 host. Use the *ping* command to test, whether principally a TCP/IP connection can be established. If *ping* is ending successfully, then you can check, whether HCM can reach the host via TCP/IP. For a first security test, invoke HCM and specify a wrong (not-existing) userid. You should get the message EEQX401I on the workstation (see below). Then use an existing

userid and specify any wrong password. In this case you should get message EEQX402I on the screen of the workstation (see below). If you get anything different, please check the output on the console and check for the reason of the problem. (Note, the HCM Dispatcher performs the security check by invocation of RACF.)

If the mentioned check with wrong userid/password is successfully, then you can try to establish a good HCM-HCD session.

General Used Technique

The HCM Dispatcher as well as the HCM Agent are issuing the following C-runtime services
- gethostname(),
- gethostbyname(),
- and eventually also a gethostbyaddress().

to determine the symbolic hostname and the IP address. HCM Dispatcher and HCM Agent must know these values to be able to communicate together. The result of these calls can be found on the console or in the job output in message CBDG987I.

Note, that the result of these services depends strongly on your installation setup and customization. These services retrieves the data from the DNS (names server) - if present -, or from */etc/hosts* - if present, or from *hlq.HOSTS.SITEINFO*.

If you have problems while starting the HCM Dispatcher or problems with getting a connection between the HCM Dispatcher and an HCM Agent, then you should carefully check the content of the message CBDG987I for the retrieved IP address and the retrieved symbolic host name. You can check these values on the console or in the job output. If you do not find the desired values, you should check your setup of the DNS (names server), and/or the other data sets mentioned above. For details please see the original TCP/IP documentation for setup and customization.

There is another file, which contains necessary definitions: /etc/resolver.conf

You can verify independently of HCM/HCD, whether the services used by the HCM Dispatcher and the HCM Agent retrieve the correct values from the system: There is a small testprogram available which uses the same C-runtime services as HCM Dispatcher and HCM Agent to retrieve the hostname and IP-address of the running system.

This testprogram is available via the Internet: Please check the homepage of Thorntree Software for the test program:

http://www.thorntreesoftware.com

Problem During Starting the HCM Dispatcher

Usually, when you start the HCM dispatcher, you should see message *CBDG980I* followed by two messages CBDG987I which informs about the IP address and the Host Symbolic Name as they are retrieved from the system. Below, you will find a sample of a successful start of a HCM dispatcher.

Sample of a Console Output for a Successful Start of a HCM Dispatcher
If the HCM Dispatcher is started as a started task and if this start is successful, then you should find a console output like this:

```
S CBDQDISP
$HASP100 CBDQDISP ON STCINRDR
IEF695I START CBDQDISP WITH JOBNAME CBDQDISP IS ASSIGNED TO USER
CBDQDISP, GROUP STCGROUP
$HASP373 CBDQDISP STARTED
IEF403I CBDQDISP - STARTED - TIME=12.25.43
CBDG980I CBDQTDIS -- HCM dispatcher starting, port = 51107
CBDG987I CBDQTDIS -- Host IP Address = <9.164.156.213>
CBDG987I CBDQTDIS -- Host Symbolic Name = <BOECTM3>
```

If you start the HCM Dispatcher via a batch job, you would find similar console output (for example a different userid).

In any case, please ensure, that TCP/IP is up and running before you start the HCM dispatcher. If you have started the HCM dispatcher, before TCP/IP has been started successfully, you have to close the dispatcher, start TCP/IP and then you can start the HCM dispatcher again.

Hostname and IP-Address
The services gethostname() and gethostbyname() are retrieving the hostname and the IP-address (see also section *General Used Technique*) from the system. The retrieved hostname is input for the gethostbyname() service. If both services are successfully completed, you will find the retrieved values in message CBDG987I.
If the messages CBDG987I does not inform about the retrieved hostname and IP-address, you can check, whether at least the correct hostname could be retrieved out of the system: At the end of the job-log, there is an extra output line which contains the hostname as retrieved by the gethostname() service (as long as there has not been an error in this service).

```
00000000 000001:01 >Hostname got by gethostname (GPMSOCKS): BOESCLM
```

Port for Dispatcher is Already in Use
If you like to start a HCM dispatcher (either as started task or via batch job) with the default port number 51107 or with a specific other port number and there is already another program which uses this port, the dispatcher can not be started successfully. You could see this information on the console log. In this case, there is message *CBDG981E* issued. Message *CBDG982I* informs that the dispatcher has been terminated.

If the HCM dispatcher can not be started successfully, the messages on the console could look like this:

```
S CBDQDISP
$HASP100 CBDQDISP ON STCINRDR
IEF695I START CBDQDISP WITH JOBNAME CBDQDISP IS ASSIGNED TO USER
CBDQDISP, GROUP STCGROUP
```

```
$HASP373 CBDQDISP STARTED
IEF403I CBDQDISP - STARTED - TIME=12.39.25
CBDG980I CBDQTDIS -- HCM dispatcher starting, port = 51107
CBDG987I CBDQTDIS -- Host IP Address = <9.164.156.213>
CBDG987I CBDQTDIS -- Host Symbolic Name = <BOECTM3>
CBDG981E CBDQTDIS -- can't listen on port 51107
CBDG982I CBDQTDIS -- HCM dispatcher terminating
IEF404I CBDQDISP - ENDED - TIME=12.39.29
$HASP395 CBDQDISP ENDED
IEA989I SLIP TRAP ID=X33E MATCHED.  JOBNAME=*UNAVAIL, ASID=002F.
$HASP250 CBDQDISP PURGED -- (JOB KEY WAS B24D0CDA)
```

If the Dispatcher tries to use a port, which is already in use and an HCM dispatcher log data set is available (*SET LOG* has been specified), it could look like this:

```
1999-05-26 12:39:27 -- main: listening on port 51107, t=0
1999-05-26 12:39:28 -- t_yc0::listen: i/o exception: port 51107 not available
%e    IOException exception thrown.
%e        function: SocketImpl::bind(const InetAddress*,int)
%e        file: HCDV5.JHOF.CPP(GPMSOCKS)
%e        line: 527
%e        Error Id is 5
%e        Error Code group is Other Error Group
%e        Exception text is:
%e            Bind() call for 'SocketImpl<Binding=INADDR_ANY,localport=51107>' failed:
EDC8115I Address already in use.
```

Starting the Dispatcher But TCP/IP is Not Already Started
When starting the HCM Dispatcher, TCP/IP must be already started. If TCP/IP is not already started, then the dispatcher can not operate successfully.
Message *CBDG987I   TCP/IP appears to be not started* is issued if one of the following conditions is true:
* TCP/IP is not started, or
* one of the following conditions is true
- C-Runtime function GETHOSTNAME() returns unsuccessfully i.e. the symbolic name of the TCP/IP host could not be retrieved.
- C-Runtime function GETHOSTBYNAME() returns unsuccessfully i.e. the host IP address could not be resolved via the host symbolic name

In the following you can see an example of a console output when a dispatcher is started via a batch job, but TCP/IP has not already been started:

```
$HASP100 BMGNDISY ON INTRDR      GNIRSS              FROM TSU04177
BMGN
IRR010I  USERID BMGN    IS ASSIGNED TO THIS JOB.
ICH70001I BMGN    LAST ACCESS AT 13:29:50 ON WEDNESDAY, MAY 26, 1999
$HASP373 BMGNDISY STARTED - INIT 1    - CLASS A - SYS TST1
IEF403I BMGNDISY - STARTED - TIME=13.33.51
CBDG980I CBDQTDIS -- HCM dispatcher starting, port = 61107
CBDG987I CBDQTDIS -- TCP/IP appears to be not started
CBDG987I CBDQTDIS -- HCM dispatcher terminating
-                                      --TIMINGS (MINS.)--
```

```
        ----PAGING COUNTS---
-JOBNAME  STEPNAME PROCSTEP    RC    EXCP    CONN    TCB     SRB   CLOCK
SERV  PG  PAGE  SWAP   VIO SWAPS
-BMGNDISY TDIS                 04    534    1389    .00     .00      .0
69480  1   10     0     0     0
IEF404I BMGNDISY - ENDED - TIME=13.33.55
-BMGNDISY ENDED.  NAME-GNIRSS               TOTAL TCB CPU TIME=   .00
TOTAL ELAPSED TIME=    .0
$HASP395 BMGNDISY ENDED
$HASP309 INIT 1    INACTIVE ******** C=A
SE '13.33.55 JOB04179 $HASP165 BMGNDISY ENDED AT BOETST1  MAXCC=4',LOGON
,USER=(BMGN)
```

In the following you can see some extracts of a job output when a dispatcher is started via a batch job, but TCP/IP has not already been started:

In the above case, a dispatcher log would not contain additional information.

```
                    J E S 2   J O B   L O G  --  S Y S T E M  T S T 1  --  N O D E   B
O E T S T 1

 13.33.51 JOB04179 ---- WEDNESDAY, 26 MAY 1999 ----
 13.33.51 JOB04179  IRR010I   USERID BMGN     IS ASSIGNED TO THIS JOB.
 13.33.51 JOB04179  ICH70001I BMGN     LAST ACCESS AT 13:29:50 ON WEDNESDAY, MAY 26,
1999
 13.33.51 JOB04179  $HASP373 BMGNDISY STARTED - INIT 1    - CLASS A - SYS TST1
 13.33.51 JOB04179  IEF403I BMGNDISY - STARTED - TIME=13.33.51
 13.33.55 JOB04179  CBDG980I CBDQTDIS -- HCM dispatcher starting, port = 61107
 13.33.55 JOB04179  CBDG987I CBDQTDIS -- TCP/IP appears to be not started
 13.33.55 JOB04179  CBDG987I CBDQTDIS -- HCM dispatcher terminating
 13.33.55 JOB04179  -                                              --TIMINGS
(MINS.)--          ----PAGING COUNTS---
 13.33.55 JOB04179  -JOBNAME  STEPNAME PROCSTEP    RC    EXCP    CONN    TCB     SRB
CLOCK    SERV  PG  PAGE  SWAP   VIO SWAPS
 13.33.55 JOB04179  -BMGNDISY TDIS                 04    534    1389    .00     .00
.0  69480  1   10     0     0     0
 13.33.55 JOB04179  IEF404I BMGNDISY - ENDED - TIME=13.33.55
 13.33.55 JOB04179  -BMGNDISY ENDED.  NAME-GNIRSS               TOTAL TCB CPU TIME=
.00  TOTAL ELAPSED TIME=    .0
 13.33.55 JOB04179  $HASP395 BMGNDISY ENDED
------ JES2 JOB STATISTICS ------
   26 MAY 1999 JOB EXECUTION DATE
          99 CARDS READ
         158 SYSOUT PRINT RECORDS
           0 SYSOUT PUNCH RECORDS
          10 SYSOUT SPOOL KBYTES
        0.06 MINUTES EXECUTION TIME
       1 //BMGNDISY JOB (DE3243,,),'GNIRSS',CLASS=A,REGION=24M,
JOB04179
         //           MSGCLASS=H,NOTIFY=BMGN,TIME=NOLIMIT
         //* FOLLOWING LINE CAN BE USED FOR JES2 SYSTEMS (IF NECESSARY)
         /*JOBPARM SYSAFF=*
         //* FOLLOWING LINE CAN BE USED FOR JES3 SYSTEMS (IF NECESSARY)
         //* //*MAIN SYSTEM=XXXX
         //*
```

```
      2 //DEFENV   SET ENV='ENVAR(ICLUI_TRACETO=STDERR)'
      3 //DEFJNP  SET JNP='+U'
      4 //DEFLOG  SET LOG=HCM.DLOG
      5 //DEFPORT SET PORT=61107
      6 //DEFJSK  SET JSK=+BMGN.HCM.TCPIP(CBDQAJSK)
      7 //DEFPO   SET PO='PO=35000'
       //*DEFP1   SET P1='P1=40000'
       //***********************************************************
       //* SAMPLE BATCH JOB TO                                    *
 ....
      8 //TDIS      EXEC PGM=CBDQTDIS,
       //          PARM='&ENV/&AV L=&LOG P=&PORT JNP=&JNP S=&JSK &PO &P1'
       IEFC653I SUBSTITUTION JCL -
PGM=CBDQTDIS,PARM='ENVAR(ICLUI_TRACETO=STDERR)/&AV L=HCM.DLOG P=61107 JNP=+U
       S=+BMGN.HCM.TCPIP(CBDQAJSK) PO=35000 &P1'
      9 //JCLOUT    DD   SYSOUT=(A,INTRDR)
     10 //SYSOUT    DD   SYSOUT=*
     11 //SYSPRINT DD   SYSOUT=*
     12 //CEEDUMP  DD   SYSOUT=*
       //*
 ICH70001I BMGN     LAST ACCESS AT 13:29:50 ON WEDNESDAY, MAY 26, 1999
 IEF236I ALLOC. FOR BMGNDISY TDIS
 IEF237I JES2 ALLOCATED TO JCLOUT
 IEF237I JES2 ALLOCATED TO SYSOUT
 IEF237I JES2 ALLOCATED TO SYSPRINT
 IEF237I JES2 ALLOCATED TO CEEDUMP
 IEF237I 0500 ALLOCATED TO SYS00002
 IEF285I   SYS1.TCPPARMS                              KEPT
 IEF285I   VOL SER NOS= MVSLIB.
 IEF237I 052F ALLOCATED TO SYS00004
 IEF285I   SYS1.TCP.STANDARD.TCPXLBIN                 KEPT
 IEF285I   VOL SER NOS= MVSTGT.
 IEF237I 05FA ALLOCATED TO SYS00006
 IEF285I   SYS1.TCP.HOSTS.SITEINFO                    KEPT
 IEF285I   VOL SER NOS= SYSPAG.
 IGD101I SMS ALLOCATED TO DDNAME (SYS00008)
       DSN (BMGN.HCM.DLOG                                 )
       STORCLAS (SMS) MGMTCLAS (STANDARD) DATACLAS (       )
       VOL SER NOS= HCDSMS
 CBDG980I CBDQTDIS -- HCM dispatcher starting, port = 61107
 CBDG987I CBDQTDIS -- TCP/IP appears to be not started
 CBDG987I CBDQTDIS -- HCM dispatcher terminating
 IGD104I BMGN.HCM.DLOG                              RETAINED,  DDNAME=SYS00008
 IEF142I BMGNDISY TDIS - STEP WAS EXECUTED - COND CODE 0004
 ...
 IEF373I STEP/TDIS    /START 1999146.1333
 IEF374I STEP/TDIS    /STOP  1999146.1333 CPU    0MIN 00.31SEC SRB    0MIN 00.09SEC
VIRT   128K SYS   324K EXT    4792K SYS   9676K
 IEF375I JOB/BMGNDISY/START 1999146.1333
 IEF376I JOB/BMGNDISY/STOP  1999146.1333 CPU    0MIN 00.31SEC SRB    0MIN 00.09SEC
 00000000 000001:01 >*** Error *** gethostbyname() return NULL. Errno=49 EDC5049I
The specified file name could not be located.
```

Sample for Console Output of a Successful Login

For a successful login with HCM, the output on the console could look like this:

```
CBDG983I CBDQTDIS -- start-agent request for user BMGN received
$HASP100 BMGN0001 ON INTRDR        BMGN                    FROM JOB06079
BMGNDISY
ICH70001I BMGN     LAST ACCESS AT 14:36:15 ON WEDNESDAY, MAY 26, 1999
$HASP373 BMGN0001 STARTED - INIT 1    - CLASS A - SYS CTM3
IEF403I BMGN0001 - STARTED - TIME=14.37.21
IEF196I IEF237I 071B ALLOCATED TO SYS00078
+CBDG986I CBDQAGNT -- HCM agent starting, port = 35000
+CBDG987I CBDQAGNT -- Host IP Address = <9.164.156.213>
+CBDG987I CBDQAGNT -- Host Symbolic Name = <BOECTM3>
+CBDG987I CBDQAGNT -- CBDQTSYS returns <CTEAM3  >
CBDG984I CBDQTDIS -- HCM agent started for user BMGN, port 35000
IEF196I IEF285I   SYS1.SCEERUN                                  KEPT
IEF196I IEF285I   VOL SER NOS= 650914.
```

In the above sample, you can find the message *CBDG983I* of the dispatcher telling that the user *BMGN* requests an HCM agent. And you will also find the message *CBDG984I* which states, that an HCM agent on port *35000* has been started for the user *BMGN*. The messages *CBDG987I* inform about the retrieved IP address, the retrieved host name and the name of the system as stored in *CVTSNAME*.

Sample for Console Output for Invalid Userid or Password

For an unsuccessful login request via HCM either with an invalid userid or invalid password, you would find the messages *CBDG983I* and *CBDG985I* on the console:

```
CBDG983I CBDQTDIS -- start-agent request for user BMGN received
CBDG985I CBDQTDIS -- HCM validation for client user id <BMGN> failed
```

In these situations, the HCM user gets the message *CBDX401E* or *CBDX402E* on the screen of the workstation (see below).

Sample of an HCM Dispatcher Log Data Set

In the following, you see a sample of an HCM Dispatcher log data set. Note, that the dispatcher log data set could be open until the dispatcher is stopped. In the following sample, there have been 3 HCM login requests. The first request has been successfully and a HCM agent has been started. This agent will use port 10000 (See also: Sample of an HCM Agent Log Data Set). The second login request was rejected, as a wrong password has been specified. The third login request was successful and a HCM agent has been started using port 10001.
Note, that the dispatcher tries to connect the agent as soon as the batch job has been submitted. Typically, there are several tries until the connect is successful, as it takes a short time until the batch job is started and until the initialization of the agent has been completed.

The dispatcher log can be started by specifying *LOG=....* in the procedure *CBDQDISP* or in the job *CBDQDISJ*.

```
1999-02-11 18:27:52 -- main: listening on port 51107, t=0
1999-02-11 18:29:28 -- t_yc_cdis::srv_start_agent: CBDG983I CBDQTDIS -- start-agent request for
user BMGN received
1999-02-11 18:29:28 -- t_yc_cdis::client_uidpw: uid/pw validation for user <BMGN> successful
```

```
1999-02-11 18:29:29 -- t_yc_cdis::find_agent_port: HCM agent port is 10000
1999-02-11 18:29:29 -- t_yc_cdis::gen_agent_jcl: CBDQTSYS returns <SCLM    >
1999-02-11 18:29:30 -- t_yc_cdis::start_agent: start HCM agent for user BMGN, maxwait=60...
1999-02-11 18:29:30 -- t_yc_cdis::start_agent: HCM agent was started via JES internal reader
1999-02-11 18:29:30 -- t_yc_cdis::wait_agent: connecting to new HCM agent on port 10000...
1999-02-11 18:29:33 -- t_yc_cdis::wait_agent: connect attempt #  1 failed...
1999-02-11 18:29:35 -- t_yc_cdis::wait_agent: connect attempt #  2 failed...
1999-02-11 18:29:37 -- t_yc_cdis::wait_agent: connect attempt #  3 failed...
1999-02-11 18:29:38 -- t_yc_cdis::wait_agent: connection established to new HCM agent on port
10000
1999-02-11 18:29:38 -- t_yc_cdis::wait_agent: sending agent init package...
1999-02-11 18:29:39 -- t_yc_cdis::wait_agent: ready notification received from new HCM agent
1999-02-11 18:29:39 -- t_yc0::close: closing connection
1999-02-11 19:09:04 -- t_yc_cdis::srv_start_agent: CBDG983I CBDQTDIS -- start-agent request for
user BMGN received
1999-02-11 19:09:04 -- t_yc_cdis::client_uidpw: client password for user <BMGN> appears invalid
(rc=8)
1999-02-11 19:09:04 -- t_yc_cdis::srv_start_agent: rc = 402 from client_uidpw
1999-02-11 19:09:04 -- t_yc0::close: closing connection
1999-02-11 19:09:14 -- t_yc_cdis::srv_start_agent: CBDG983I CBDQTDIS -- start-agent request for
user BMGN received
1999-02-11 19:09:14 -- t_yc_cdis::client_uidpw: uid/pw validation for user <BMGN> successful
1999-02-11 19:09:14 -- t_yc_cdis::find_agent_port: HCM agent port is 10001
1999-02-11 19:09:14 -- t_yc_cdis::gen_agent_jcl: CBDQTSYS returns <SCLM    >
1999-02-11 19:09:16 -- t_yc_cdis::start_agent: start HCM agent for user BMGN, maxwait=60...
1999-02-11 19:09:16 -- t_yc_cdis::start_agent: HCM agent was started via JES internal reader
1999-02-11 19:09:16 -- t_yc_cdis::wait_agent: connecting to new HCM agent on port 10001...
1999-02-11 19:09:16 -- t_yc_cdis::wait_agent: connect attempt #  1 failed...
1999-02-11 19:09:18 -- t_yc_cdis::wait_agent: connect attempt #  2 failed...
1999-02-11 19:09:19 -- t_yc_cdis::wait_agent: connection established to new HCM agent on port
10001
1999-02-11 19:09:19 -- t_yc_cdis::wait_agent: sending agent init package...
1999-02-11 19:09:19 -- t_yc_cdis::wait_agent: ready notification received from new HCM agent
1999-02-11 19:09:19 -- t_yc0::close: closing connection
```

Sample of an HCM Agent Log Data Set

In the following, you see a sample of an HCM agent log data set of a short HCM-HCD session (only a list of IODFs has been requested in this session. If there are more HCM requests, the log data set will contain more entries).

The agent log can be started by an entry in the HCM inifile *eeqhcm.ini*.
```
Example:
[CBDQAGNT]
ALOGDSN=HCM.LOG.AGNT
```
Or if you specify *SET LOG=...* in the skeleton for the agent.
```
Example:
//DEFLOG   SET LOG='//HCM.LOG.AGNT'
```
In both examples the log data set is allocated using the userid of the HCM-user with the data set name *user.HCM.LOG.AGNT*

```
1999-02-11 18:29:36 -- init_agent: waiting for dispatcher connection on port 10000...
1999-02-11 18:29:39 -- init_agent: receiving agent init package from dispatcher
1999-02-11 18:29:39 -- init_agent: expected client user id is <BMGN>
1999-02-11 18:29:39 -- init_agent: sending ready notification to dispatcher
1999-02-11 18:29:39 -- t_yc0::close: closing connection
1999-02-11 18:29:39 -- run_agent: waiting for client connection on port 10000 for 60 seconds.
1999-02-11 18:29:40 -- run_agent: connected.
1999-02-11 18:29:40 -- t_yc_agnt::agnt_clogon: client logon request received
1999-02-11 18:29:40 -- t_yc_agnt::agnt_validate: received request number is 1
1999-02-11 18:29:40 -- t_yc_agnt::agnt_clogon: remote HOM DLL <CBDQRHRF> loaded
1999-02-11 18:29:40 -- t_yc_agnt::agnt_clogon: remote HOM function <CBDQRHOM> loaded
1999-02-11 18:29:40 -- t_yc_agnt::agnt_clogon: HCM client logon for user <BMGN> successful
```

```
1999-02-11 18:29:40 -- t_yc_agnt::agnt_rfcall: rfcall request received
1999-02-11 18:29:40 -- t_yc_agnt::agnt_validate: received request number is 2
1999-02-11 18:29:40 -- t_yc_agnt::agnt_rfcall: calling remote function with ibl = <1039>
1999-02-11 18:29:40 -- t_yc_agnt::agnt_rfcall: remote HOM function call returns <0>
1999-02-11 18:29:40 -- t_yc_agnt::agnt_rfcall: remote HOM function call obl =    <1036>
1999-02-11 18:29:40 -- t_yc_agnt::agnt_rfcall: sending remote function call reply
1999-02-11 18:29:40 -- t_yc_agnt::agnt_rfcall: sending 1036 bytes of remote function output
1999-02-11 18:29:40 -- t_yc_agnt::agnt_rfcall: rfcall request received
1999-02-11 18:29:40 -- t_yc_agnt::agnt_validate: received request number is 3
1999-02-11 18:29:40 -- t_yc_agnt::agnt_rfcall: calling remote function with ibl = <1071>
1999-02-11 18:30:02 -- t_yc_agnt::agnt_rfcall: remote HOM function call returns <0>
1999-02-11 18:30:02 -- t_yc_agnt::agnt_rfcall: remote HOM function call obl =    <1068>
1999-02-11 18:30:02 -- t_yc_agnt::agnt_rfcall: sending remote function call reply
1999-02-11 18:30:02 -- t_yc_agnt::agnt_rfcall: sending 1068 bytes of remote function output
1999-02-11 18:30:23 -- t_yc_agnt::agnt_rfcall: rfcall request received
1999-02-11 18:30:23 -- t_yc_agnt::agnt_validate: received request number is 4
1999-02-11 18:30:23 -- t_yc_agnt::agnt_rfcall: calling remote function with ibl = <1007>
1999-02-11 18:30:43 -- t_yc_agnt::agnt_rfcall: remote HOM function call returns <0>
1999-02-11 18:30:43 -- t_yc_agnt::agnt_rfcall: remote HOM function call obl =    <34980>
1999-02-11 18:30:43 -- t_yc_agnt::agnt_rfcall: sending remote function call reply
1999-02-11 18:30:43 -- t_yc_agnt::agnt_rfcall: sending 34980 bytes of remote function output
1999-02-11 18:30:51 -- t_yc_agnt::agnt_rfcall: rfcall request received
1999-02-11 18:30:51 -- t_yc_agnt::agnt_validate: received request number is 5
1999-02-11 18:30:51 -- t_yc_agnt::agnt_rfcall: calling remote function with ibl = <1007>
1999-02-11 18:30:52 -- t_yc_agnt::agnt_rfcall: remote HOM function call returns <0>
1999-02-11 18:30:52 -- t_yc_agnt::agnt_rfcall: remote HOM function call obl =    <1004>
1999-02-11 18:30:52 -- t_yc_agnt::agnt_rfcall: sending remote function call reply
1999-02-11 18:30:52 -- t_yc_agnt::agnt_rfcall: sending 1004 bytes of remote function output
1999-02-11 18:30:52 -- t_yc_agnt::agnt_clogoff: client logoff request received
1999-02-11 18:30:52 -- t_yc_agnt::agnt_validate: received request number is 6
1999-02-11 18:30:52 -- t_yc_agnt::agnt_clogoff: remote HOM DLL <CBDQRHRF> un-loaded
1999-02-11 18:30:52 -- t_yc_agnt::agnt_clogoff: HCM client logoff for user <BMGN> successful
1999-02-11 18:30:52 -- t_yc0::close: closing connection
1999-02-11 18:30:52 -- run_agent: HCM agent terminating, rc = 0.
```

UNIX System Services Permission for Agent Missing

If there is no UNIX System Services permission for the HCM userid, a login request would result in an EEQX414E message.

The Job log for the HCM agent could look like this:

```
                  J E S 2   J O B   L O G  --  S Y S T E M   S C L M  --  N O D E   B O E S C L M

17.48.00 JOB07551 ---- MONDAY,    15 FEB 1999 ----
17.48.00 JOB07551  ICH70001I MSEI     LAST ACCESS AT 17:44:36 ON MONDAY, FEBRUARY 15, 1999
17.48.00 JOB07551  $HASP373 CBD00003 STARTED - INIT    6 - CLASS A - SYS SCLM
17.48.00 JOB07551  IEF403I CBD00003 - STARTED - TIME=17.48.00
17.48.01 JOB07551  ICH408I USER(MSEI    ) GROUP(DE#03243) NAME(EICHELSDOERFER MARKU)
     CL(PROCESS )
                  OMVS SEGMENT NOT DEFINED
17.48.02 JOB07551  +CBDG986I CBDQAGNT -- HCM agent starting, port = 10003
17.48.02 JOB07551  ICH408I USER(MSEI    ) GROUP(DE#03243) NAME(EICHELSDOERFER MARKU)
                    CL(PROCESS )
                    OMVS SEGMENT NOT DEFINED
17.48.02 JOB07551  -                                                        --TIMINGS
17.48.02 JOB07551  -JOBNAME  STEPNAME PROCSTEP    RC   EXCP   CONN   TCB
17.48.02 JOB07551  -CBD00003 AGNT                 04    183    824    .00
17.48.02 JOB07551  IEF404I CBD00003 - ENDED - TIME=17.48.02
17.48.02 JOB07551  -CBD00003 ENDED.  NAME-MSEI                    TOTAL TCB CPU TIME=  .00
17.48.02 JOB07551  $HASP395 CBD00003 ENDED
------ JES2 JOB STATISTICS ------
  15 FEB 1999 JOB EXECUTION DATE
          62 CARDS READ
         118 SYSOUT PRINT RECORDS
           0 SYSOUT PUNCH RECORDS
```

```
           7 SYSOUT SPOOL KBYTES
         0.04 MINUTES EXECUTION TIME
        1 //CBD00003 JOB (DE3243,,),'MSEI',CLASS=A,REGION=128M,
          //           MSGCLASS=Q,TIME=NOLIMIT,
          //           USER=MSEI,PASSWORD=
          //* THE FOLLOWING LINE IS FOR JES2 SYSTEMS (HERE: USED AS DEFAULT)
          /*JOBPARM SYSAFF=*
          //* THE FOLLOWING LINE IS FOR JES3 SYSTEMS (HERE: IT IS DISABLED)
          //* //*MAIN SYSTEM=(SCLM)
          //*
        2 //DEFENV   SET ENV='ENVAR(ICLUI_TRACETO=STDERR)'
        3 //DEFPORT  SET PORT='10003'
      4 //DEFTIME  SET T='60'
        5 //DEFLOG   SET LOG='//HCM.LOG.AGNT'
        6 //DEFAV    SET AV=''
        7 //DEFTIME  SET TIMESTMP='1999-02-15 17:47:57'
          //*
          //*************************************************************
          //* HCM AGENT JOB SKELETON FOR HCM TCP/IP HOST CONNECTION   *
          //*                                                         *
      ....
          //*************************************************************
          //*
        8 //AGNT     EXEC PGM=CBDQAGNT,
          //           PARM='&ENV/P=&PORT T=&T L=&LOG &AV'
          IEFC653I SUBSTITUTION JCL - PGM=CBDQAGNT,PARM='ENVAR(ICLUI_TRACETO=STDERR)/P=10003 T=60
L=//HCM.LOG.AGNT '
        9 //STEPLIB  DD DISP=SHR,DSN=SYS1.SCBDHENU
          //*
       10 //SYSOUT   DD SYSOUT=*
       11 //SYSPRINT DD SYSOUT=*
       12 //CEEDUMP  DD SYSOUT=*
       13 //HCDPROF  DD DISP=SHR,DSN=&SYSUID..HCD.PROFILE
          IEFC653I SUBSTITUTION JCL - DISP=SHR,DSN=MSEI.HCD.PROFILE
       14 //HCDTRACE DD DISP=SHR,DSN=&SYSUID..HCM.TRACE
          IEFC653I SUBSTITUTION JCL - DISP=SHR,DSN=MSEI.HCM.TRACE
ICH70001I MSEI     LAST ACCESS AT 17:44:36 ON MONDAY, FEBRUARY 15, 1999
IEF236I ALLOC. FOR CBD00003 AGNT
IEF237I 070B ALLOCATED TO STEPLIB
IEF237I JES2 ALLOCATED TO SYSOUT
IEF237I JES2 ALLOCATED TO SYSPRINT
IEF237I JES2 ALLOCATED TO CEEDUMP
IGD103I SMS ALLOCATED TO DDNAME HCDPROF
IGD103I SMS ALLOCATED TO DDNAME HCDTRACE
IGD101I SMS ALLOCATED TO DDNAME (SYS00002)
        DSN (MSEI.HCM.LOG.AGNT                          )
        STORCLAS (SMS) MGMTCLAS (STANDARD) DATACLAS (SMS)
        VOL SER NOS= SCLS12
CBDG986I CBDQAGNT -- HCM agent starting, port = 10003
IGD104I MSEI.HCM.LOG.AGNT                       RETAINED,  DDNAME=SYS00002
IEF142I CBD00003 AGNT - STEP WAS EXECUTED - COND CODE 0004
IEF285I   SYS1.SCBDHENU                          KEPT
IEF285I   VOL SER NOS= 63MRES.
IEF285I   MSEI.CBD00003.JOB07551.D0000101.?       SYSOUT
IEF285I   MSEI.CBD00003.JOB07551.D0000102.?       SYSOUT
IEF285I   MSEI.CBD00003.JOB07551.D0000103.?       SYSOUT
IGD104I MSEI.HCD.PROFILE                        RETAINED,  DDNAME=HCDPROF
IGD104I MSEI.HCM.TRACE                          RETAINED,  DDNAME=HCDTRACE
IEF373I STEP/AGNT    /START 1999046.1748
IEF374I STEP/AGNT    /STOP  1999046.1748 CPU    0MIN 00.21SEC SRB    0MIN 00.06 ....
IEF375I  JOB/CBD00003/START 1999046.1748
IEF376I  JOB/CBD00003/STOP  1999046.1748 CPU    0MIN 00.21SEC SRB    0MIN 00.06SEC
00000000 000001:01 >*** Error *** Rc from gethostname()=-1.Errno=156 EDC5156I Process
initialization error.
```

If in this situation an HCM Agent log is available, it would look like this:

```
1999-02-15 17:48:02 -- init_agent: waiting for dispatcher connection on port 10003...
1999-02-15 17:48:02 -- t_yc0::listen: i/o exception: port 10003 not available
%e    IOException exception thrown.
%e       function: SocketImpl::create(int)
%e       file: HCDV5.JHOF.CPP(GPMSOCKS)
%e       line: 427
%e       Error Id is 2
%e       Error Code group is Other Error Group
%e       Exception text is:
%e          Socket() call for type 2 failed: EDC5156I Process initialization error.
1999-02-15 17:48:02 -- init_agent: rc = 100 listening for dispatcher connection
```

No Connection Between Dispatcher and Agent Established

After having been started by the dispatcher due to submission of a batch job, the agent is listening for being contacted by the dispatcher. If this does not happen within a predefined time frame, the agent gets a time-out. To investigate into this problem, at first ensure carefully, that the retrieved IP address and symbolic host name are correct (see also section *General Used Technique*)! Then check whether the time frame in which the dispatcher tries to connect to the agent, and the time frame in which the agent listens for a connection to the dispatcher have some overlap. You can do this by checking the dispatcher and the agent log data sets which contain corresponding time-stamps. If there is an overlap but the agent does not receive information from the dispatcher, there might be a setup problem. For example, dispatcher and agent may run on different systems in a sysplex (e.g., due to an incorrect specification of the JOBPARM SYSAFF parameter), or there are setup problems with TCP/IP or the Names Server (DNS, e.g. due to a wrong HOSTNAME in TCPPARMS).

The log data set of the HCM Agent might look like this:

```
1999-05-31 12:12:38 -- init_agent: waiting for dispatcher connection on port 10005...
1999-05-31 12:13:19 -- t_yc0::listen: timeout on port 10005
1999-05-31 12:13:19 -- init_agent: rc = 101 listening for dispatcher connection
```

Compare the above time stamps with the time stamps in the HCM Dispatcher log data set of the failed connect requests:

```
1999-05-31 12:09:30 -- t_yc_cdis::wait_agent: connecting to new HCM agent on port 10005...
1999-05-31 12:09:33 -- t_yc_cdis::wait_agent: connect attempt #  1 failed...
1999-05-31 12:09:35 -- t_yc_cdis::wait_agent: connect attempt #  2 failed...
```

Please note, if the time between individual connect attempts is significant more than one or two seconds, this can be an indication that you have a TCP/IP or names server setup problem (please see also section *General Used Technique*).

Another reason for not getting a connection between the dispatcher and the agent - even with overlapping time stamps - could be, that RACF is not used, but an OEM Security Software is used and this software requires some service update (see *ACF2* in chap. *OEM Security Software*).

A further reason could be that the dispatcher could not find a port for the agent within the specified port range (either default range or determined by the variables DEFP0/P0 and DEFP1/P1). A symptom of this situation can be indicated either by message EEQX305E or by message EEQX405E. If you feel that there should be a usable port within the specified range, but the dispatcher does not find any, then check the MAXSOCKETS parameter in member BPXPRMxx.

Useful commands to debug are NETSTAT CONN, NETSTAT BYTE, NETSTAT DEV, and NETSTAT SOCKETS.

Abandoned HCM Client

Every HCM session should be cleanly closed from within HCM. This way the HCM agent will also be closed.

If, for any reason, the HCM session is terminated abnormally (e.g., power failure affecting the HCM client workstation), the HCM agent on the host might not know in all cases about the client's crash and will keep running. However, it will not be usable any more. Further the data sets allocated by the HCM client might be still in access (e.g. an IODF). In these data sets would not be available for a new HCM-HCD session.
Whenever you have a situation like this, you must therefore cancel the abandoned HCM agent job manually from a TSO session.

File error: HCM with TCP/IP has been invoked under WIN-OS/2 or Windows 3.n

TCP/IP connectivity for HCM is not supported for HCM running under WIN-OS/2 or Windows 3.n.

If you invoke HCM with TCP/IP as Host Connection protocol with HCM running under WIN-OS/2 or Windows 3.n, you will get a message that informs you that the necessary EEQRHOMV.DLL can not be found.

After you have pressed the *Close* button, a second message will be displayed:
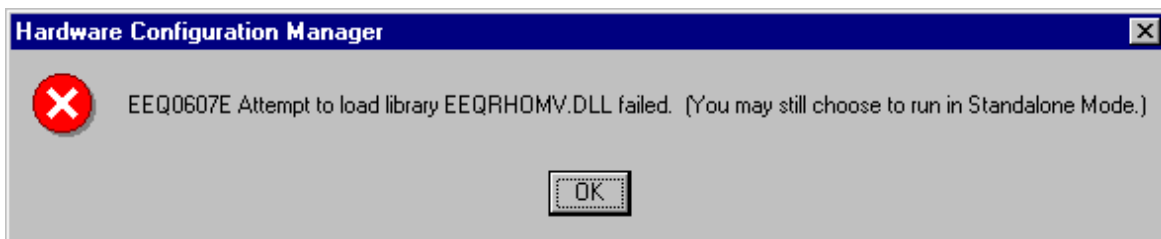
You can continue in Standalone mode or cancel HCM to invoke it again. The next time, choose APPC if you are running on WIN-OS/2 or Windows 3.n.

EEQX100E:

If you get message *EEQX100E* after trying a login with the HCM client, then the dispatcher might not have been started, or you have specified a wrong port number. Further this message can occur, if TCP/IP is currently not active. (To check, whether TCP/IP is currently active, you can also use the *ping* command.)
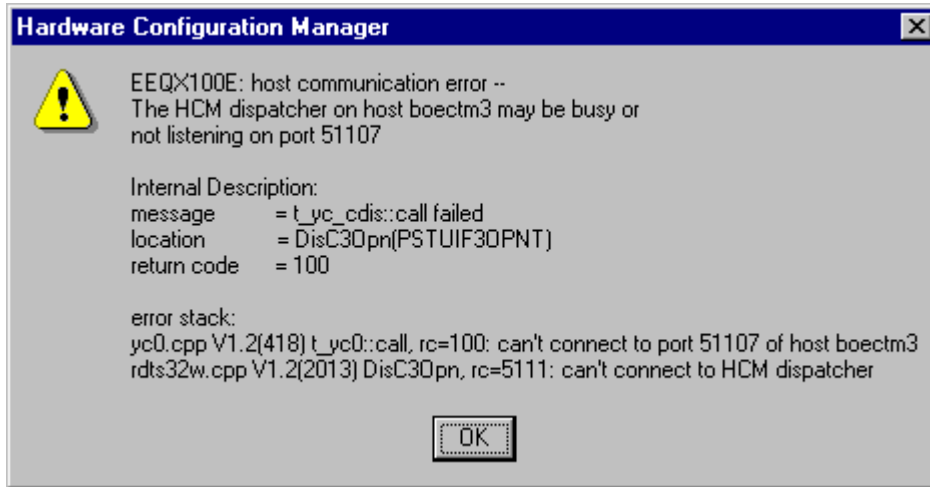
This message can also occur, if the HCM dispatcher has been started at a time, when TCP/IP was not already active.

EEQX102E:

If an unknown hostname is specified during login, then you will get message EEQX102I. Most likely, there is a typo in the hostname. If you have spelled the hostname correctly and you receive this message, it is recommended to check, whether you get a response if you ping to this system (see also section *Common HCM Login Problems with TCP/IP*).
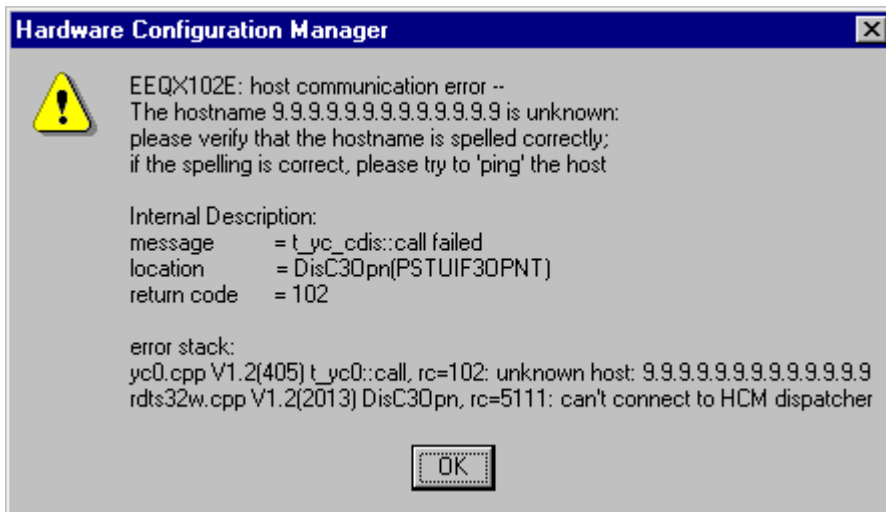
EEQX305E:

If you get EEQX305E, you might want to check whether your have enough resources on your system.

```
Hardware Configuration Manager                                    [X]

  ⚠    EEQX305E: host communication error --
       timeout waiting for HCM dispatcher reply,
       increasing <eeqhcm.ini[CBDQTDIS]rtimeout>
       (currently 90 seconds) might help

       Internal Description:
       message    = t_yc_cdis::snd_start_agent failed
       location   = DisC3Opn(PSTUIF3OPNT)
       return code = 305

       error stack:
       yc0.cpp V1.2(474) t_yc0::rcv, rc=101: timeout during receive
       yc1.cpp V1.2(709) t_yc1::rcvp, rc=305: timeout during receive
       tdis.cpp V1.11(1919) t_yc_cdis::rcv_tdis_reply, rc=305: rc = 305 receiving dispatcher reply
       tdis.cpp V1.11(2022) t_yc_cdis::snd_start_agent, rc=305: rc = 305 receiving dispatcher reply
       rdts32w.cpp V1.2(2211) DisC3Opn, rc=5111: start of HCM agent failed

                              [ OK ]
```

You may find more information in the job output or your console. For example:

```
0081  $HASP100 CBD10708 ON INTRDR      BMGN                         FROM STC08639
      CBDQDISP
0090  BPXF209I ALL OF THE OPENEDITION MVS RESERVED SOCKET PORTS ARE IN USE.
0081  ICH70001I BMGN     LAST ACCESS AT 09:56:00 ON MONDAY, OCTOBER 5, 1998
0090  $HASP373 CBD10708 STARTED - INIT 3    - CLASS A - SYS CTM3
0090  IEF403I CBD10708 - STARTED - TIME=09.56.15
0090  BPXF209I ALL OF THE OPENEDITION MVS RESERVED SOCKET PORTS ARE IN USE.
0090  +CBDG986I CBDQAGNT -- HCM agent starting, port = 10008
0090  BPXF209I ALL OF THE OPENEDITION MVS RESERVED SOCKET PORTS ARE IN USE.
0290  -                                                     --TIMINGS (MINS.)--
            ----PAGING COUNTS---
0290  -JOBNAME  STEPNAME PROCSTEP   RC    EXCP    CONN    TCB    SRB   CLOCK
      SERV   PG   PAGE   SWAP   VIO SWAPS
0290  -CBD10708 AGNT                04    451    1780    .00    .00    1.0
      34735   1    0     0     0    0
0090  IEF404I CBD10708 - ENDED - TIME=09.57.19
0290  -CBD10708 ENDED.  NAME-BMGN                  TOTAL TCB CPU TIME=   .00
      TOTAL ELAPSED TIME=   1.0
0090  $HASP395 CBD10708 ENDED
0090  $HASP309 INIT 3    INACTIVE ******** C=CBA
0090  BPXF209I ALL OF THE OPENEDITION MVS RESERVED SOCKET PORTS ARE IN USE.
```
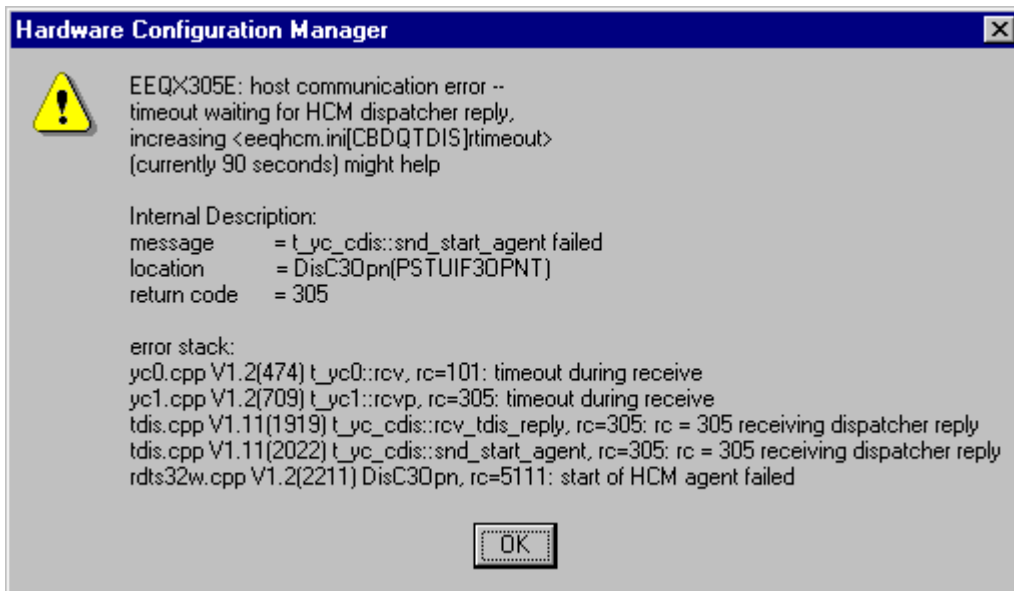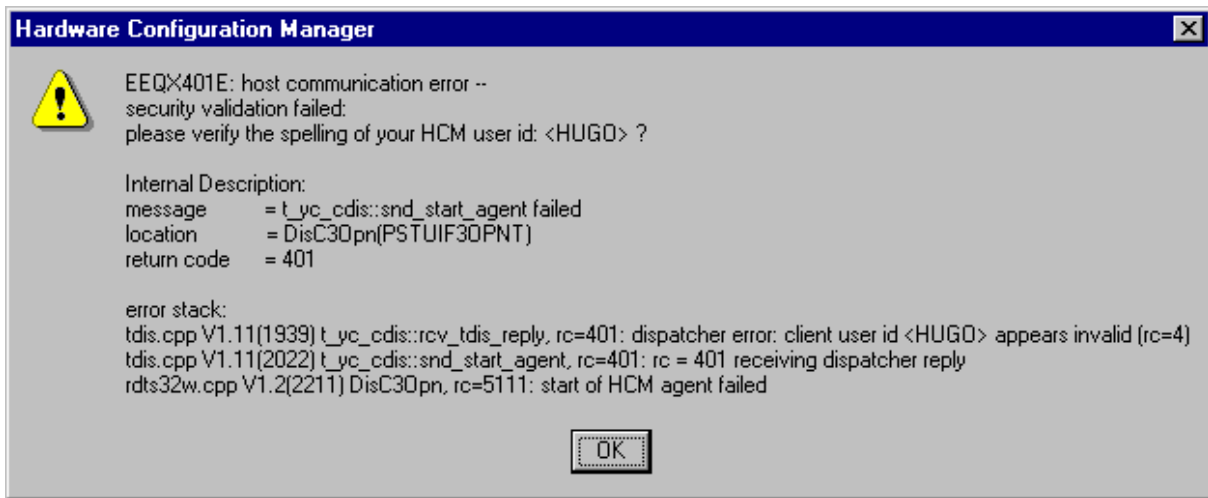
Another reason for getting message EEQX305E could be, that there are problems with the setup of the DNS, for example there might be a wrong HOSTNAME in TCPPARMS. Useful commands for debugging are NETSTAT CONN and NETSTAT BYTE.

Another reason can be that the dispatcher can not connect to the agent (see also chap. *No Connection Between Dispatcher and Agent Established*).

EEQX401E:

If an invalid userid is passed by the HCM client to the HCM dispatcher, message *EEQX401E* is issued.

```
Hardware Configuration Manager                                          [X]

   ⚠   EEQX401E: host communication error --
        security validation failed:
        please verify the spelling of your HCM user id: <HUGO> ?

        Internal Description:
        message        = t_yc_cdis::snd_start_agent failed
        location       = DisC3Opn(PSTUIF3OPNT)
        return code    = 401

        error stack:
        tdis.cpp V1.11(1939) t_yc_cdis::rcv_tdis_reply, rc=401: dispatcher error: client user id <HUGO> appears invalid (rc=4)
        tdis.cpp V1.11(2022) t_yc_cdis::snd_start_agent, rc=401: rc = 401 receiving dispatcher reply
        rdts32w.cpp V1.2(2211) DisC3Opn, rc=5111: start of HCM agent failed

                            [ OK ]
```
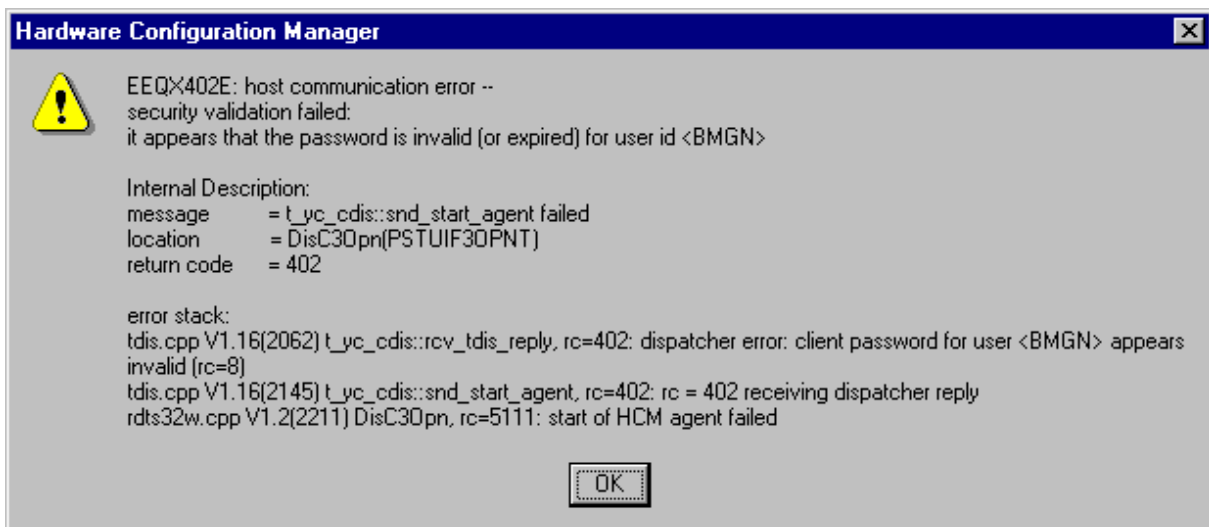
On the console log on the host, you will find message *CBDG983I* and *CBDG985I*.

```
CBDG983I CBDQTDIS -- start-agent request for user HUGO received
CBDG985I CBDQTDIS -- HCM validation for client user id <HUGO> failed
```

EEQX402E:

If an invalid or expired password or an invalid userid is passed by the HCM client to the HCM dispatcher, message *EEQX402E* will be issued.

```
Hardware Configuration Manager                                          [X]

   ⚠   EEQX402E: host communication error --
        security validation failed:
        it appears that the password is invalid (or expired) for user id <BMGN>

        Internal Description:
        message        = t_yc_cdis::snd_start_agent failed
        location       = DisC3Opn(PSTUIF3OPNT)
        return code    = 402

        error stack:
        tdis.cpp V1.16(2062) t_yc_cdis::rcv_tdis_reply, rc=402: dispatcher error: client password for user <BMGN> appears
        invalid (rc=8)
        tdis.cpp V1.16(2145) t_yc_cdis::snd_start_agent, rc=402: rc = 402 receiving dispatcher reply
        rdts32w.cpp V1.2(2211) DisC3Opn, rc=5111: start of HCM agent failed

                            [ OK ]
```

On the console log on the host, you will find message CBDG983I and CBDG985I.

```
CBDG983I CBDQTDIS -- start-agent request for user BMGN received
CBDG985I CBDQTDIS -- HCM validation for client user id <BMGN> failed
```

EEQX405E:

The specified port range might be too small and there are really all ports in use, or you might have to check the parameter MAXSOCKETS in member BPXPRMxx.

EEQX406E:

You can get the message EEQX406E for example if
- The HCM dispatcher does not have read access to the skeleton, which is used to setup the JCL for starting the HCM agent.
- The HCM dispatcher could not find the data set for the skeleton, which is to be used to start the HCM agent. It might not exist

Please check the data set to be used as skeleton. It should be one of:
- Default data set name (SYS1.PROCLIB(CBDQAJSK))
- Data set specified in the procedure or JCL, which has been used to start the HCM dispatcher
- Data set specified in the HCM user's ini file in the section [CBDQAGNT] with the keyword AJCLSKEL

EEQX414E:

After successful userid and password validation, the HCM dispatcher uses a skeleton to build up a job, which is submitted to start the HCM agent. After the submit of the job, the dispatcher checks, whether the HCM agent is running successfully. If for any reason, the dispatcher can not contact the HCM agent, the HCM user will be informed, that a timeout has occurred.
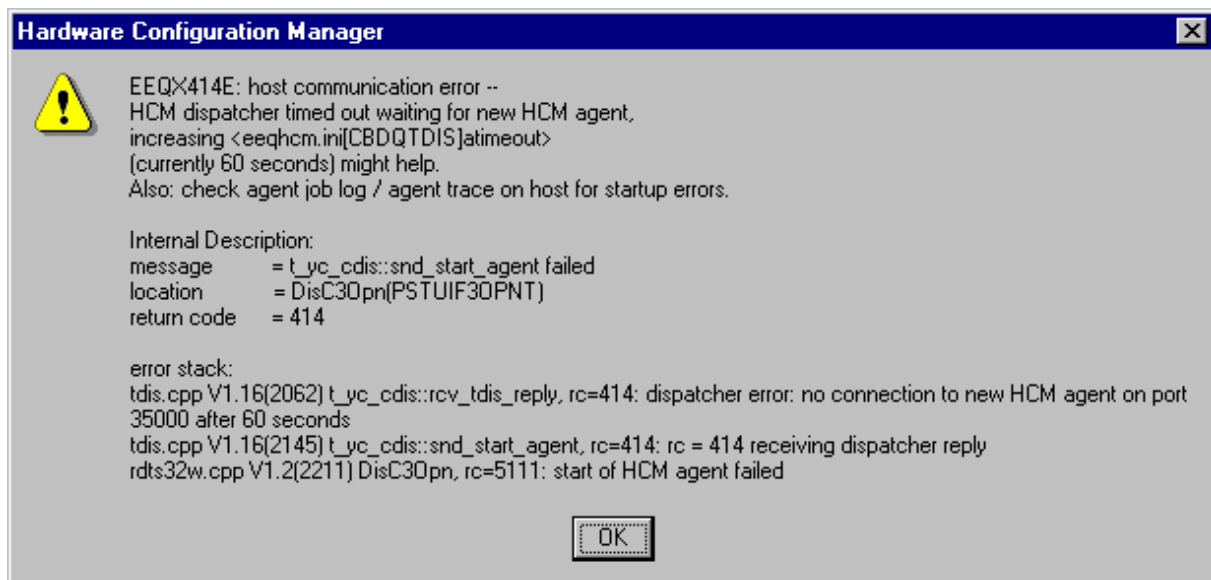
There might be many reasons, why the dispatcher can not connect to the HCM agent. For example, if the submitted job has not been started within a reasonable time, or there might have been an error in the submitted JCL, or the job runs on a wrong system (see *JOBPARM SYSAFF* for *JES2* or *MAIN SYSTEM* for *JES3*). You can check the job output. May be it is necessary to provide another MSGCLASS than the defaulted message class to get appropriate job output. You can also check the console log for information. In case of a JCL error it might look like this:

```
CBDG983I CBDQTDIS -- start-agent request for user BMGN received
$HASP100 CBD10704 ON INTRDR       BMGN                        FROM STC09224
CBDQDISP
IEF196I ICH70002I YOUR PASSWORD WILL EXPIRE IN   9 DAYS.
ICH70002I YOUR PASSWORD WILL EXPIRE IN   9 DAYS.
$HASP100 CBD10704 ON INTRDR       BMGN                        FROM STC09224
CBDQDISP
IEFC452I CBD10704 - JOB NOT RUN - JCL ERROR 760
$HASP110 CBD10704 -- ILLEGAL JOB CARD
$HASP119 CBD10704 DELETED - ILLEGAL JOB CARD, RC=1
$HASP125 INTRDR     SKIPPING FOR JOB CARD FROM STC09224 CBDQDISP
```

One reason for getting a JCL error can be, that in the skeleton there has not been specified accounting information (and also no accounting information has been passed by the HCM client to the dispatcher - via entry in the eeqhcm.ini file).

A reason for getting EEQX414E could also be, that the permission to use UNIX System Services is not available (see also chap. *UNIX System Services Permission for Agent Missing*).

EEQX415E:

The HCM host dispatcher validates the userid and password, which are passed by the HCM client to the host. As a RACF request can only be performed, if the program is invoked from an authorized library, the dispatcher must reside in an authorized library (like SYS1.LINKLIB). If for any reason, the dispatcher is invoked from an unauthorized library, the RACF check can not be performed and message *EEQX415E* is issued.
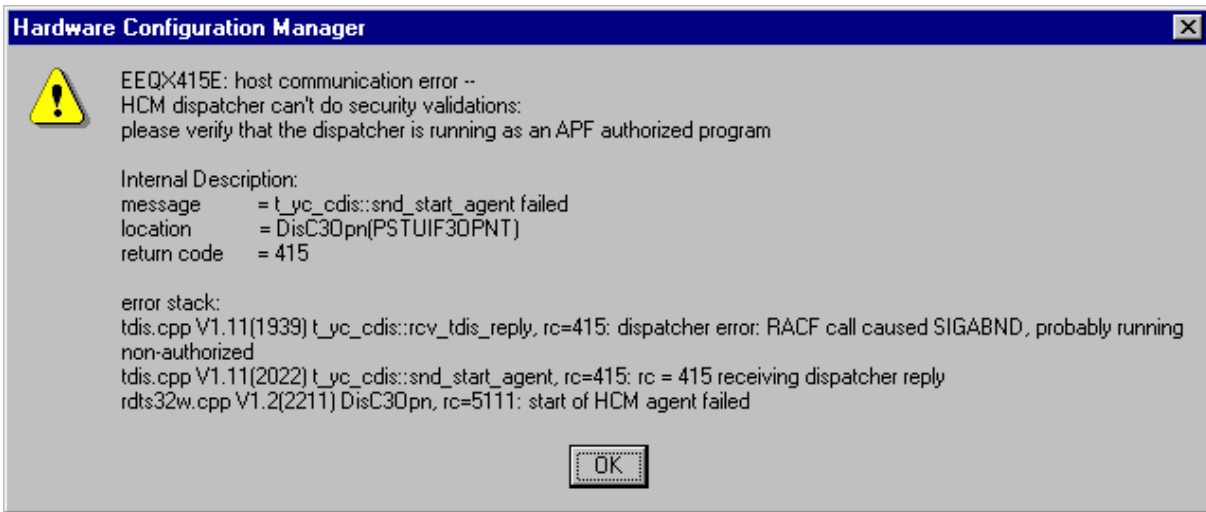
EEQX500E:

In the case, that the dispatcher is canceled during a HCM Login request, message EEQX500E can occur:
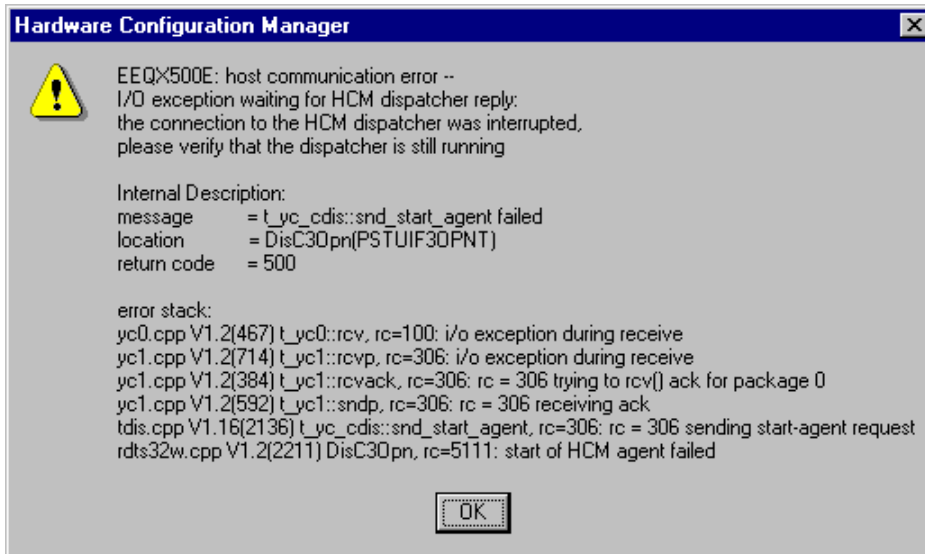
EEQX501E:

In the case, that the HCM agent has been terminated for any reason during an active HCM-HCD session or the connection between the HCM client and the HCM agent (HCD server) has got lost, a new HCM request can result in a message EEQX501E. Check for the reason, why the connection has got lost.
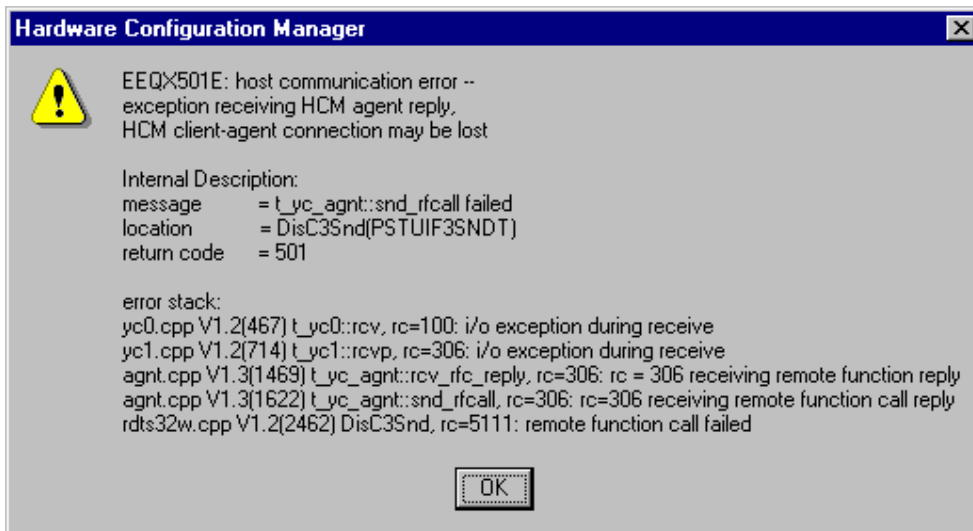
Examination of the JOBLOG of the Agent might provide additional information.

For example, the codes FCC or EC6 could indicate a Language Environment (LE) mixture in your system setup.

EEQX503E:

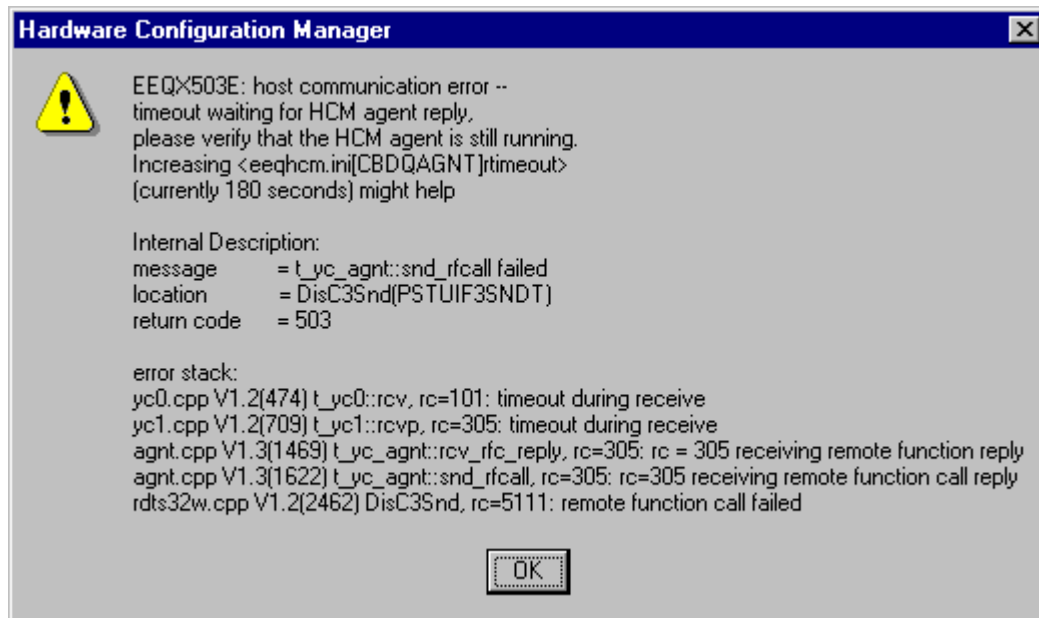If the HCM agent is not responding to HCM client requests you might face message EEQX503E, which indicates a timeout problem. The reason for this can be a long running HCD request, or that the HCM agent (HCD server) has got a problem and is no more active. You might check on the host, whether the agent has got a problem and is no more working. If it is a long running time consuming request, you might have to increase the value for timeout time by specifying *RTIMEOUT* in section *[CBDQAGNT]* in the *EEQHCM.INI* file.

```
Hardware Configuration Manager                              [x]

    ⚠    EEQX503E: host communication error --
         timeout waiting for HCM agent reply,
         please verify that the HCM agent is still running.
         Increasing <eeqhcm.ini[CBDQAGNT]rtimeout>
         (currently 180 seconds) might help

         Internal Description:
         message       = t_yc_agnt::snd_rfcall failed
         location      = DisC3Snd(PSTUIF3SNDT)
         return code   = 503

         error stack:
         yc0.cpp V1.2(474) t_yc0::rcv, rc=101: timeout during receive
         yc1.cpp V1.2(709) t_yc1::rcvp, rc=305: timeout during receive
         agnt.cpp V1.3(1469) t_yc_agnt::rcv_rfc_reply, rc=305: rc = 305 receiving remote function reply
         agnt.cpp V1.3(1622) t_yc_agnt::snd_rfcall, rc=305: rc=305 receiving remote function call reply
         rdts32w.cpp V1.2(2462) DisC3Snd, rc=5111: remote function call failed

                              [ OK ]
```

Other Messages:

If you get other messages, which are not mentioned here, please inform IBM and provide the complete and exact message text (especially the Internal Description and the error stack information). If possible make a screen shot of the message. Further please provide also the exact circumstance.

Message EDC5049I: gethostbyname()

When you start the HCM dispatcher or while an HCM agent is started and you get a message like
*** Error *** gethostbyname() return NULL.
Errno=49 EDC5049I The specified file name could not be located.
then you should check your TCP/IP set up. Most likely a DD statement for SYSTCPD is not available. Depending on the TCP/IP setup, you might have to include a DD name SYSTCPD in the procedure for the HCM dispatcher and in the skeleton for starting the HCM agent. For details, check the TCP/IP documentation.

This message can also be issued, if TCP/IP has not been started (see also *Starting the Dispatcher But TCP/IP is Not Already Started*).

Message EDC5156I: gethostname()
If you get a message like
*** Error *** RC from gethostname() =-1.*
Errno=156 EDC5156I Process initialization error.
after the start of an HCM agent, please check your TCP/IP set up. One reason could be that the userid for the agent does not have permission to use UNIX System Services (please see also chap. *UNIX System Services Permission for Agent Missing*), or that the home directory can not be accessed properly. -There might be also other reasons.-

Message EDC5129I: gethostname()
When you get a message like
*** Error *** gethostname() =-1.*
Errno=129 EDC5129I No such file or directory.
then check whether a STEPLIB to SYS1.CEE.SCEEERUN and a DD statement for SYSTCPD help to resolve the problem.

Message EDC8115I: Address already in use

When you start the dispatcher and get a message *CBD981E Can't listen to port=nnnn* and also the message *EDC8115I Address already in use* in the Dispatcher log, then most likely another program is already using the specified port. See also *Port for Dispatcher is Already in Use.*

User Abend 4087 when starting the dispatcher
When a user abend ABEND U4087 occurs while starting the dispatcher, customer should consider to check, whether there is some maintenance to be applied to LE.

Message BPXF209I: Reserved Sockets in Use
When you get the message
BPXF209I ALL OF THE OPENEDITION MVS RESERVED SOCKET PORTS ARE IN USE
(for example on the console or in the job output), you might consider to increase the value of *INADDRANYCOUNT* in *SYS1.PARMLIB(BPXPRMYY).*

OEM Security Software

ACF2
Note, if you do not use *RACF* but the OEM Product *ACF2*, you need the PTF *LO47304* from *CA-ACF2.*

TopSecret
Note, if you do not use *RACF* but the OEM Product *TopSecret*, you might need to do additional setup steps to customize the system to run successfully HCM Dispatcher and HCM Agents.

Frequently Asked Questions

Q: I can work successfully with with HCM using a userid which has UID=0, but I have difficulties with a userid which has a UID different from 0 (for example UID=400). What can I do?
A: Most likely there is no homedirectory available for this userid. Usually you provide /u/*user_id* as homedirectory.

*** *End of Document* ***