

# TestSCU

## User Manual

### v 1.0

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# 1 Introduction



**TestSCU** is a tool for testing and troubleshooting DICOM communications. The software acts as a DICOM SCU (**S**ervice **C**lass **U**ser) and is able to perform the following services:

Echo – Verification SCU	to test the basic communication with a SCP (Service Class Provider)
Storage SCU	sends a DICOM object using different transfer syntaxes
Query – Find SCU	queries a remote database using “patient name” or “study data”
Worklist SCU	able to query a remote Worklist SCP using “patient name” or “study data”
DICOM Print SCU	tests the printing capability of DICOM, JPEG or Bitmap images on a remote DICOM printer
Dump	shows the content of a DICOM object

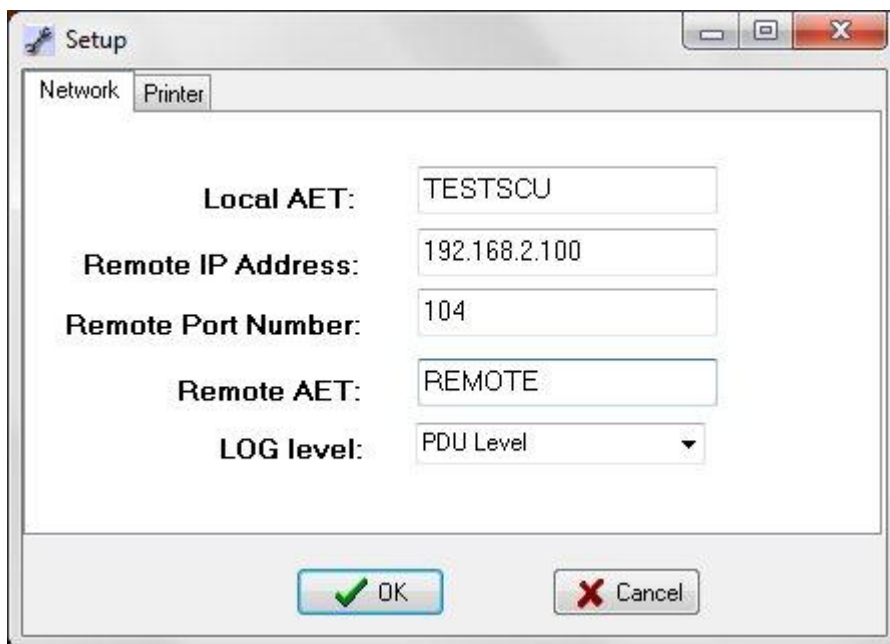
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## 2 Installation

TestSCU can be executed without installation, save it within a folder and just run it.

## 3 Setup

### 3.1 Network Setup



The following parameters can be changed in this dialog window:

Local AET	TestSCU Application Entity Title
Remote IP Address	IP-Address of the remote device
Remote Port Number	port number for the remote device
Remote AET	remote device Application Entity Title
LOG Level	represents the different logging levels (No Log, PDU Level, or Socket Level)

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### 3.1.1 Log Level

It is possible to choose between the three following log structures:

#### No Log

In this mode no information about the DICOM communication is recorded.

#### PDU Level

By selecting the option "PDU Level" DICOM communication is logged on Tag Level. Each tag contains additional information in form of "(group, element), length, VR, "value" - Description".

Have a look on the following example of an ECHO communication for further details.

```
10:15:48 AM: Starting ECHO Service
Connected to: 192.168.2.4:11112
Presentation Context Accept, Transfer Syntax: 1.2.840.10008.1.2
DCM4CHEE >> NX_VAM2048
  (0000,0000), 4, UL, "56" - Group Length
  (0000,0002), 18, UI, "1.2.840.10008.1.1" - Affected SOP
Class UID
  (0000,0100), 2, US, "48" - Command Field
  (0000,0110), 2, US, "3" - Message ID
  (0000,0800), 2, US, "257" - Data Set Type
DCM4CHEE << NX_VAM2048
  (0000,0002), 2, UI, "1." - Affected SOP Class UID
  (0000,0100), 2, US, "32816" - Command Field
  (0000,0120), 2, US, "3" - Message ID Being Responded To
  (0000,0800), 2, US, "257" - Data Set Type
  (0000,0900), 2, US, "0" - Status
10:15:48 AM: ECHO OK
```

#### Socket Level

By clicking on "Socket Level" all Bytes that have passed the socket are shown in the log file in both hexadecimal and ASCII format. Length and direction of each byte package can be found at the start.

```
10:03:29 AM: Starting ECHO Service
Connected to: 192.168.2.4:11112
 74 >> 01 00 00 00 00 CD 00 01 00 00 4E 58 5F 56 41 4D 32 30 34
38 00 00 00 00 00 00 44 43 4D 34 43 48 45 45 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00
.....NX_VAM2048.....DCM4CHEE.....
.....
 25 >> 10 00 00 15 31 2E 32 2E 38 34 30 2E 31 30 30 30 38 2E 33
2E 31 2E 31 2E 31
....1.2.840.10008.3.1.1.1
  8 >> 20 00 00 2E 01 00 00 00
.....
 21 >> 30 00 00 11 31 2E 32 2E 38 34 30 2E 31 30 30 30 38 2E 31
2E 31
0...1.2.840.10008.1.1
```

21 >> 40 00 00 11 31 2E 32 2E 38 34 30 2E 31 30 30 30 38 2E 31  
2E 32  
@...1.2.840.10008.1.2

4 >> 50 00 00 3A  
P...:

8 >> 51 00 00 04 00 00 40 00  
Q.....@.

34 >> 52 00 00 1E 31 2E 32 2E 38 32 36 2E 30 2E 31 2E 33 36 38  
30 30 34 33 2E 32 2E 31 33 39 36 2E 39 39 39  
R...1.2.826.0.1.3680043.2.1396.999

16 >> 55 00 00 0C 43 68 61 72 72 75 61 56 69 73 74 61  
U...CharruaVista

74 << 02 00 00 00 00 C0 00 01 00 00 4E 58 5F 56 41 4D 32 30 34  
38 00 00 00 00 00 20 44 43 4D 34 43 48 45 45 00 00 00 00 00 00  
20 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  
00 00 00 00 00 00 00 00 00 00 00 00 00  
.....NX\_VAM2048..... DCM4CHEE.....  
.....

124 << 10 00 00 15 31 2E 32 2E 38 34 30 2E 31 30 30 30 38 2E 33  
2E 31 2E 31 2E 31 21 00 00 19 01 00 00 00 40 00 00 11 31 2E 32 2E  
38 34 30 2E 31 30 30 30 38 2E 31 2E 32 50 00 00 42 51 00 00 04 00  
00 40 00 52 00 00 1E 31 2E 32 2E 38 32 36 2E 30 2E 31 2E 33 36 38  
30 30 34 33 2E 32 2E 31 33 39 36 2E 39 39 39 55 00 00 14 43 68 61  
72 72 75 61 53 6F 66 74 5F 50 72 69 6E 74 53 43 50  
....1.2.840.10008.3.1.1.1!.....@...1.2.840.10008.1.2P..BQ.....@.  
R...1.2.826.0.1.3680043.2.1396.999U...CharruaSoft\_PrintSCP

Presentation Context Accept, Transfer Syntax: 1.2.840.10008.1.2  
DCM4CHEE >> NX\_VAM2048

(0000,0000), 4, UL, "56" - Group Length  
(0000,0002), 18, UI, "1.2.840.10008.1.1" - Affected SOP  
Class UID  
(0000,0100), 2, US, "48" - Command Field  
(0000,0110), 2, US, "3" - Message ID  
(0000,0800), 2, US, "257" - Data Set Type

80 >> 04 00 00 00 00 4A 00 00 00 46 01 03 00 00 00 04 00 00  
00 38 00 00 00 00 02 00 12 00 00 00 31 2E 32 2E 38 34 30 2E 31  
30 30 30 38 2E 31 2E 31 00 00 00 01 02 00 00 00 30 00 00 00 10  
01 02 00 00 03 00 00 00 08 02 00 00 00 01 01  
.....J...F.....8.....1.2.840.10008.1.1.....0.....  
.....

62 << 04 00 00 00 00 38 00 00 00 34 01 03 00 00 02 00 02 00 00  
00 31 2E 00 00 00 01 02 00 00 00 30 80 00 00 20 01 02 00 00 03  
00 00 00 00 08 02 00 00 00 01 01 00 00 00 09 02 00 00 00 00  
.....8...4.....1.....0.....

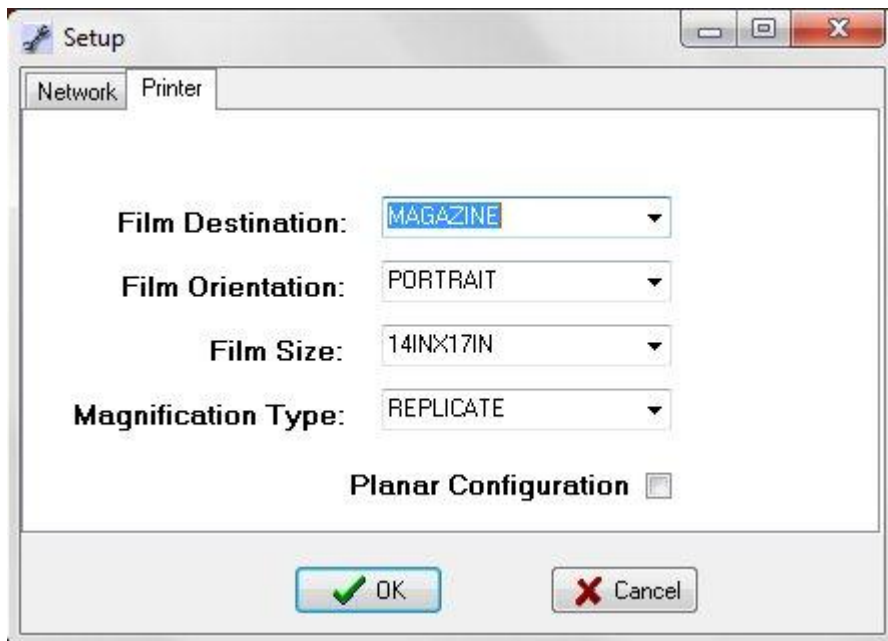
DCM4CHEE << NX\_VAM2048  
(0000,0002), 2, UI, "1." - Affected SOP Class UID  
(0000,0100), 2, US, "32816" - Command Field  
(0000,0120), 2, US, "3" - Message ID Being Responded To  
(0000,0800), 2, US, "257" - Data Set Type  
(0000,0900), 2, US, "0" - Status

10 >> 05 00 00 00 00 04 00 00 00 00  
.....

10 << 06 00 00 00 00 04 00 00 00 00  
.....

10:03:29 AM: ECHO OK

## 3.2 Printer Setup



This works exclusively for the DICOM Print SCU service.

Film Destination	MAGAZINE, PROCESSOR, BIN_1, BIN_2 or BIN_3
Film Orientation	PORTRAIT or LANDSCAPE
Film Size	14INX17IN, 14INX14IN, 10INX12IN, 8INX10IN
Magnification Type	REPLICATE, BILINEAR, CUBIC or NONE