

COGNITIVE TPG CXD4-1000

CERNER INSTALLATION GUIDE

MILLENNIUM

This guide covers the following model(s):

CXD2-1000

CXD2-1300

CXT2-1000

CXT2-1300

CXD4-1000

CXD4-1300-S

CXD4-1330

CXT4-1000

CXT4-1300

CXT4-1330

REVISION

Date	Revision	Modified by	Notes
1/16/18	1.1.16.18	Noel Gordon	Initial Release
4/5/18	2.4.5.18	Scott Garrett	Added Linux Pharmacy Installation for CDX4-1300-S
4/26/18	3.4.26.18	Scott Garrett	Added more detail in CXD4-1300 printer installation.
6/11/18	4.6.11.18	Scott Garrett	Added location to download formppd printer library
6/26/18	5.6.26.18	Scott Garrett	Added formppd download step to Pharmacy printer setup procedure.
8/23/18	6.8.23.18	Scott Garrett	Added download location for required files to Pharmacy printer setup procedure. Reformatted procedure.
4/5/19	7.4.5.19	Scott Garrett	Added step in Olympus setup to set backend printing.

The latest version of this document can be found in the following place:

<https://wiki.ucern.com/display/public/Peripherals/Peripheral+Pages+Home>

TECHNOLOGY PERIPHERAL PAGES WIKI

The “Technology Peripheral Pages Wiki” is a wiki page designed to provide our Cerner clients and associates with easy access to all of our Technology Validation Lab (TVL) documentation, notes and printer libraries. This wiki page also has links to other printer and scanner resources around Cerner.

<https://wiki.ucern.com/display/public/Peripherals/Peripheral+Pages+Home>

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OVERVIEW

This document contains notes and procedures that will help configure this device and its associated devices using the Millennium AIX Cerner proprietary print sub-system. This documentation will not address any application configuration.

This document contains notes & procedures for the experienced administrator. It is not intended to be a step by step guide for the everyday user. It is assumed that the reader understands how to operate the specific printer and has administrator privileges on the system and printer being installed.

If you need additional assistance please contact your institution's help desk, your Cerner account team or Cerner's Client Care Team. In Kansas City, Missouri, call (816)201-9800 or toll free at (866)221-8877 for assistance.

CERNER VALIDATION

The COGNITIVE TPG CXD4-1000 thermal label printer and its associated models have been validated for use with our Cerner Millennium suite of applications running on AIX, HP-UX and Linux operating systems. This validation is valid in the US and Internationally.

ASSOCIATED PRINTERS

A printer is considered an "Associated printer" if:

- 1) The manufacturer has assured Cerner that it has the same controller and print engine as the printer being tested.
- 2) Passes the Cerner technical review where we confirm the manufacturer's claims.
- 3) The printer being tested passes validation.
- 4) Any issues that were found and fixed during the validation testing are propagated to the associated printers.

The following printers are considered "Associated Printers" to the tested and validated COGNITIVE TPG CXD4-1000. These "Associated Printers" are not tested but are still considered "Cerner Validated".

CXD2-1000	CXT2-1300	CXT4-1000
CXD2-1300	CXD4-1300-S	CXT4-1300
CXT2-1000	CXD4-1330	CXT4-1330

PRINTER INSTALLATION AND OPERATION

Please see the manufacturer's "User Guide" for installation, setup, loading media and operation. This User's Guide can be found on the manufacturer's website.

www.cognitivetpg.com

Website navigation:

Support → Drivers & Downloads → C Series → C Series User's Guide

http://www.cognitivetpg.com/assets/downloads/cseries_userguide_english_revC.pdf

SETTING UP THE COGNITIVE TPG CXD4-1000 THERMAL PRINTER

The following instructions will guide you through the basics for setting up the COGNITIVETPG CXD4-1000 thermal printer.

To configure this printer, you will need the Cognitive TPG Printer Administrator software (JAdmin Tool). This can be downloaded from the following webpage:

<http://www.cognitivetpg.com/support/downloads/CSeries>

NEEDED ITEMS & INFORMATION

The following items and information will be needed before you continue with this installation:

Items:

1. COGNITIVETPG CXD4-1000 Thermal Printer
2. Power cord
3. Ethernet cable
4. USB cable

Information:

- Network Settings
 - Will this printer be using a DHCP or Static network setup?
If you will be using a static setup you will need the following information:
 - IP address (to be used)
 - Subnet Mask
 - Gateway IP Address

GENERAL SETUP

This is a list of steps you need to perform to setup the COGNITIVETPG CXD4-1000 thermal printer for the first time. Please follow these steps in the order presented.

- 1) Remove the printer and power cord from the box.
- 2) Plug the power cable into the printer and into a power receptacle.
- 3) Plug an Ethernet cable into the printer and into the network.
- 4) Power printer on.
- 5) Configure the network. (see Below)
- 6) Adjust necessary media settings. (see Manufacturer's User Guide)

NETWORK SETUP

Configuring the Network using a DHCP IP Address:

The printer is defaulted out of the box to set the printers IP address using DHCP. If you are going to use a DHCP address your printer should have set its address and you network setup is complete. To view the current network information, refer to the JAdmin Tool (See below).

Configuring the Network using a Static IP Address:

If you are setting up a static IP address please follow this procedure.

- 1) Bring up the JAdmin Tool on your PC.
- 2) Connect the printer to your PC using a USB cable.
- 3) On the JAdmin Tool, if the "Connection Settings" tab is not highlighted, select it.
- 4) In the "Connection Type" section, select the "Use USB Direct Connection" radio button and click the "Connect" button.
- 5) In the "Network Connection" section, uncheck the "DHCP" checkbox.
- 6) Enter the printer's desired IP information and click "Apply"
- 7) Reboot the printer for the changes to take effect.

INSTALLING THE PRINTER IN AIX (MILLENNIUM)

OVERVIEW

This section will help you configure the COGNITIVETPG CXD4-1000 thermal printer on an AIX operating system in a Cerner Millennium environment. However, this procedure will not provide information on configuring the printer within the Millennium applications.

You will need to configure the operating system in this order:

- 1) Install the FORMZEBRA AIX Library (if not already installed)
- 2) Edit the `“/etc/hosts”` file
- 3) Add the libraries and queues in the `“queue.def”` file and run `“makeprinters”`.
- 4) Build the queue with **S.M.I.T.**

INSTALLING THE AIX LIBRARY

The library files consist of a definition file (**formzebra.def**), a directory (**formzebra**) which contains the master library modules and a colon file (**formzebra.cfg**). The colon file is the file that the systems print subsystem uses. The colon file is created from the definition file when you run the `“makeprinters”` command.

If the FORMZEBRA library has not already been installed, install it now. The `“forms”` directory should have the following directory and files when you are done.

`/cerner/w_standard/provide/forms`

```
drwxrwsrwx  2 d_prvmak d_prvmak    256 Dec 28 2011 formzebra
-rwxrwxrwx  1 d_prvmak d_prvmak   1768 Dec 29 2011 formzebra.cfg
-rwxrwxrwx  1 d_prvmak d_prvmak   3001 Dec 29 2011 formzebra.def
```


EDITING THE HOST FILE

Edit the “**/etc/hosts**” file using the “vi” editor. Enter the printers IP address, hostname and description in the following format.

```
10.171.16.10 c1000 #COGNITIVETPG CXD4-1000 Thermal Printer
```

Note: Replace the above example with your printer’s specific information.

The “**hosts**” file can be found in the following location:

/etc/hosts

EDITING THE QUEUE DEFINITION FILE

Modify the **queue.def** file and enter the queue and library information as shown below.

The queue definition file can be found in the following location:

/cerner/w_standard/provide/forms/queue.def

Note: This example of the queue.def file has been stripped down to show only the relevant entries.

```
-----  
#####  
# queue.def  
#####  
  
define:  
    FormZEBRA = formzebra  
  
#####  
  
ex4t1:  
    description = COGNITIVETPG CXD4-1000 Thermal Printer  
    form = zbdyn16  
    library = FormZEBRA  
-----
```

Note: Please change the “**queue**” (c1000) parameters to match the client’s specifications.

Run the “**makeprinters**” command after editing the queue.def file.

Note: The “**makeprinters**” command will generate the configuration (colon) file from the definition file. So make sure that you have completed editing the queue.def file before running makeprinters.

BUILDING & CONFIGURING THE QUEUES USING S.M.I.T.

To setup the printer queues follow this step by step procedure.

- 1) At the prompt type the following command:

smit

- 2) Within the "System Management" menu select the following menu item and press Enter:

Print Spooling

- 3) Within the "Print Spooling" menu select the following menu item and press Enter:

AIX Print Spooling

- 4) Within the "AIX Print Spooling" menu select the following:

Add a Print Queue

- 5) Within the "Add a Printer Queue" window select the following:

hpJetDirect Network Printer (HP JetDirect)

- 6) Within "Printer Type" window select the following:

Other

- 7) Within the second "Printer Type" window select the following:

generic Generic Printer

- 8) Within the "BOOTP / TFTP Server window select the following:

2 Do NOT make this system a BOOTP / TFTP Server

- 9) Enter the queue name in the following menu items. All the rest should be kept the same.

Note: Use the arrow keys to navigate through the menu items. Do not press "Enter" until you are instructed to do so. Enter the client's specified queue name.

ASCII	[c1000]
HOSTNAME of the JetDirect Card	[c1000]

- 10) Press "**Enter**" after entering in the last parameter.

- 11) Exit SMIT by Pressing "**ESC 0**" (**F10**)

TESTING THE PRINTER CONFIGURATION

After you have completed the printer configuration you should test to make sure you can print to the new printer.

Use the following command to test the printer.

- 1) Send a print test job to the printer to verify the queues functionality.

print_file -Pxxxxx yyyy

Note: Set xxxxxx to the printer queue you want to print to and set yyyy to the test file you want to print. Make sure the test file is written in ZPL.

Example:

print_file -Pc1000 ztest.dat

INSTALLING THE PRINTER IN LINUX / CUPS (MILLENNIUM)

OVERVIEW

This section will help you configure the COGNITIVE TPG CXD4-1000 thermal printer on a Red Hat Linux operating system using our Cerner print subsystem and CUPS in a Cerner Millennium environment. However, this procedure will not provide information on configuring the printer within the Millennium application.

You will need to configure the operating system in this order:

- 1) Install the FORMZEBRA CUPS Library (if not already installed)
- 2) Edit the /etc/hosts file
- 3) Add the libraries and queues in the “queue.def” file and run “makeprinters”.
- 4) Configure the printer in CUPS

INSTALLING THE ZEBRA CUPS LIBRARY

The library files consist of a definition file (formzebra.def), a colon file (formzebra.cfg) and a directory called “formzebra” which contains the master library modules. The colon file is built from the definition file when “makeprinters” command is run. The colon file is the file that the print subsystem uses.

If the FORMZEBRA library has not been installed, install it now. The “forms” directory should have the following directory and files when you are done.

\$cer_forms

```
drwxrwsrwx 2 b_common system    512 Oct 04 14:16 formzebra
-rwxrwxrwx 1 b_common system    2263 Oct 04 12:21 formzebra.cfg
-rwxrwxrwx 1 b_common system    3511 Oct 04 12:21 formzebra.def
```

EDITING THE HOST FILE

Edit the “hosts” file using the “vi” editor. Enter the printers IP address, hostname and description in the following format.

```
10.171.16.10 c1000    #COGNITIVETPG CXD4-1000 Thermal Printer
```

Note: Replace the above example with your printer’s specific information.

The “hosts” file can be found in the following location:

/etc/hosts

EDITING THE QUEUE DEFINITION FILE

Modify the queue.def file and enter the queue and library information as shown below.

The queue definition file can be found in the following location:

\$cer_forms/queue.def

Note: This example of the queue.def file has been stripped down to show only the relevant entries.

```
-----  
#####  
#   queue.def  
#####  
  
c1000:  
    description = COGNITIVETPG CXD4-1000 Thermal Printer  
    form      = zbdyn16  
    library   = formzebra  
-----
```

Note: Please change the “queue” (c1000) parameter to match the client’s specifications.

Run the following command after editing the queue.def file to generate the queue.cfg colon file.

./makeprinters

Note: The “makeprinters” command will generate the new queue.cfg file from the modified queue.def file.

VERIFYING PRINTER CONECTIVITY

To verify the connectivity and proper “/etc/hosts” file configuration you will need to make sure the printer can communicate to the server.

- 1) Type “**ping c1000**”

Note: change the “c1000” to the queue name of the printer you are testing.

You should see a response from your printer.

```
PING c1000 (10.171.16.18) 56(84) bytes of data.  
64 bytes from t247 (10.171.16.18): icmp_seq=5 ttl=64 time=0.116 ms  
64 bytes from t247 (10.171.16.18): icmp_seq=6 ttl=64 time=0.103 ms
```

```
--- c1000 ping statistics ---
```

```
2 packets transmitted, 3 received, 0% packet loss, time 394ms  
rtt min/avg/max/mdev = 0.103/0.127/0.175/0.031 ms
```

- 2) Press “CTRL C” to exit the ping.

CONFIGURING THE PRINTER IN CUPS

Printers can be configured to CUPS using the web interface, CUPS GUI or lpadmin command. Using the lpadmin command is much faster especially if you are adding multiple printers.

- 1) To add the printer to CUPS enter the command line below.

```
lpadmin -p c1000 -m raw -v socket://10.171.16.10 -E
```

Option	Description	Entry
-p	Printer Name	c1000
-m	Model	raw
-v	Device	Socket://10.171.16.10
-E	Enables the printer and accepts jobs	

Note: Please change the above parameters to match the client's specifications.

VERIFYING PRINTER QUEUE

To verify the functionality of the new printer queue you will need to print a test document. Enter the following command to print to the new print queue:

```
print_file -Pc1000 -fport testfile
```

Option	Description	Entry
-P	Print queue name	ex4t1
-f	* Form to use	port, land or post
-v	Name of test document to print	testfile

* port = PCL file, land = PCL file, post = Postscript file

Note: Please change the above parameters to match the client's specifications.

INSTALLING THE CXD4-1300-S PRINTER IN LINUX / CUPS (MILLENNIUM)

PHARMACY APPLICATION

This section will help you configure the COGNITIVETPG CXD4-1300-S thermal printer on a Red Hat Linux operating system using our Cerner print subsystem and CUPS in a Cerner Millennium environment.

Note:

Contact CognitiveTPG for the custom “**script.txt**” file required in step #3

The required files for this installation can be found at the following location:

<https://wiki.cerner.com/pages/viewpage.action?pageId=1749234451>

Installing the RPM:

- 1) Copy the RPM (ctpg-cups-cpl-driver-x.x-x.x86_64.rpm) to the backend node.
Note: x.x-x.x in the RPM name refers to the latest RPM release. The latest RPM can be obtained through the link above.
- 2) Run the following command to install the RPM:
rpm -ivh ctpg-cups-cpl-driver-x.x-x.x86_64.rpm

Note:

The RPM installation process creates the “**/opt/ctpg/ppds/Cognitive**” folder structure.

Installing the Custom Script:

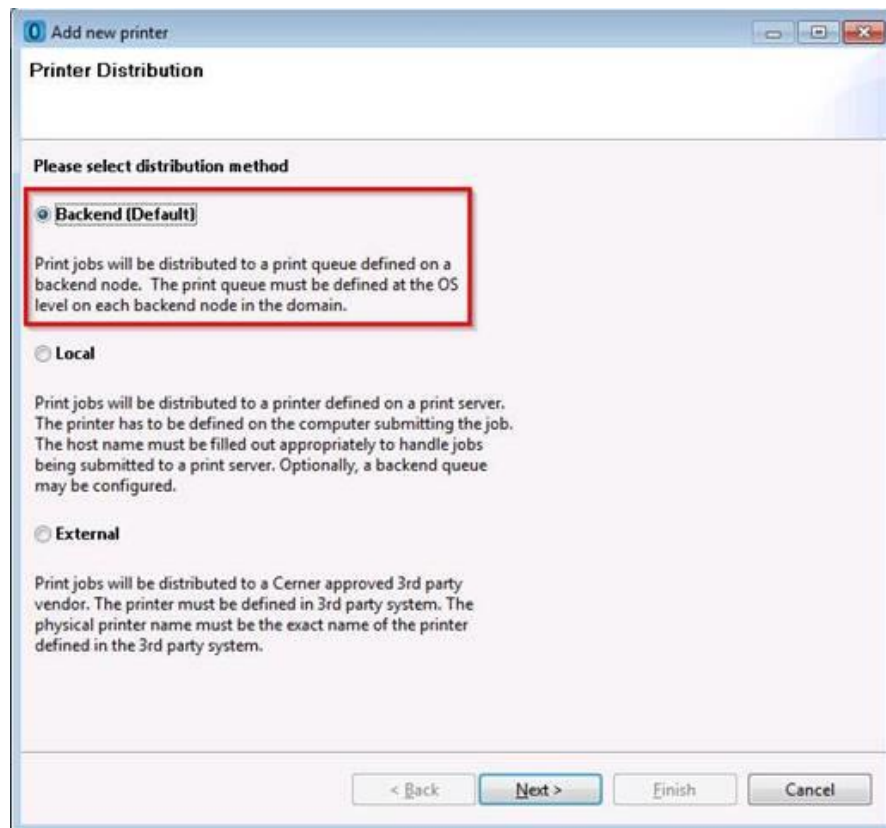
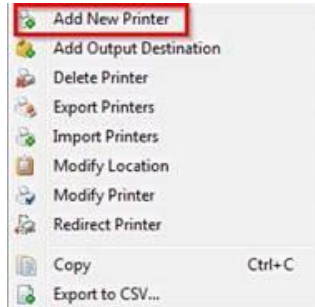
- 3) Create “**custom**” directory under “**/opt/ctpg**” and then copy the “**script.txt**” file (provided by CognitiveTPG) to the “**/opt/ctpg/custom**” directory.

Installing the Cerner “formppd” File:

- 4) Download the “**formppd.tar**” file and untar it in the “**\$cer_forms**” directory on all associated backend application nodes running CUPS.

Building the printer in Olympus and CUPS:

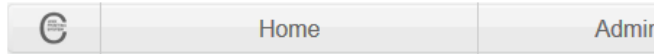
- 5) Build printer in Olympus Device Viewer
 - Select the distribution method “Backend (Default)”



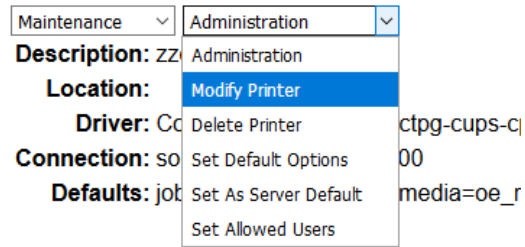
- Set DIO code = 8
- Use Printer Library (forms library) = formppd
- Complete printer setup in Olympus Device Viewer as normal

6) Setup CUPS

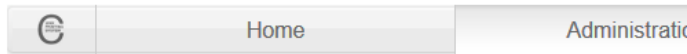
- Go to CUPS web interface for application node(s) you are installing the printer on
- Find printer
- Modify printer (you may have to login with root user)



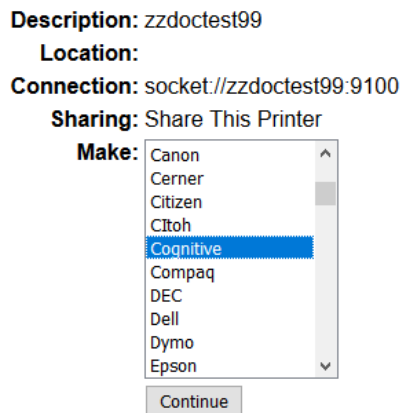
zzdoctest99 (Idle, Accepting Jobs)



- Click continue on first screen
- Click continue on second screen
- First two screens can be left default
- Select Cognitive in manufacturer list



Modify zzdoctest99



- Select model (current will not exist for new printer setups)

Modify zzdoctest99

Description: zzdoctest99

Location:

Connection: socket://zzdoctest99:9100

Sharing: Share This Printer

Make: Cognitive

Model: Current Driver - Cognitive CXD4-1300 , ctpg-cups-cpl-driver1.1 (ctpg LSB 3.2)
Cognitive CXD4-1300 , ctpg-cups-cpl-driver1.1 (ctpg LSB 3.2) (en)

- Click **“Modify Printer”**

7) Test print with Device Viewer test page.

Take note, additional setup documentation (such as the background image for the pantograph) should be provided by CognitiveTPG. Also, the printer only prints 4.25 X 6 Postscript jobs correctly. Regular sized (8.5 x 11) print jobs will only have the lower left corner print off (the exception is the cups test page as it will auto size the test page for the printer). If they are using this for prescription printing, the req script will need to be modified to print the correct sized document.

Contact your Cerner Account Executive (CAE) to coordinate the Cerner label format build. The Cerner label format should be Postscript, 4.25” x 6”.

Printer has been setup.