Nova Pluto Control System

Network set-up solution

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This section introduces several common network set-up solutions, so that users can configure their network according to their specific environment. In order to ensure regular running of the system, the operator is recommended to obtain some network knowledge before use.

1 Requirements

Factory default IP of Pluto control system is 192.168.0.220, following requirements have to be fulfilled to enable the LED display running:

1) Use 192.168.0.XXX as LAN network segment;

2) IP 192.168.0.220 available.

If item 1) is not fulfilled, please connect client to computer directly by Ethernet cable, set computer IP as 192.168.0.XXX, avoid using 220, set system IP later after the NovaLCT-Pluto software running in the computer connects to it. (System IP setting operation instruction will be given in section 2.1);

2. If item 2) is not fulfilled, please free IP 192.168.0.220;

3. When both requirements are fulfilled, please connect clients to LAN respectively for the first time use to avoid IP conflict. Set system IP later after connection.
2 Network set-up solution

2.1 LAN configuration solution

All LED displays and the control computer need to locate in the same LAN;

Requirements:

**Hardware:**

- Nova asynchronous control card: PSD100
- Switch

**Software:**

- NovaLCT-Pluto
- PlutoManager

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Figure 1 All LED displays and control computers locate in the same LAN
**Set up steps:**

1) **View asynchronous control system IP**

Run NovaLCT-Pluto in control computer. Search Pluto system when it is used for the first time. LCT will search all the Pluto systems within the scope of LAN.

Searching results is shown as below:

![Search Pluto System Window](image)

**Figure 2 Search Pluto system**

2) **Select the client, then click “Connect System” to return to the main interface;**

3) **Press “config”→“software config” to enter below page, Connect IP is current computer IP; Connect port should be between 1024~49150, shouldn’t be same as other software port.**
Figure 3 Software Config Window

4) Click “Settings” → “Network Settings” to enter interface shown as below:

Figure 4 Network parameters settings

5) Check “Configure the asynchronous system information” to rename the system. An easy to recognize name will bring convenience to your future operation;
6) Check “Configure system network parameters to connect in LAN” to configure LAN parameters as shown below. After completion, click “Send” in Figure 3 to send network parameters to asynchronous control system.

![LAN parameters configuration](image)

The IP address of asynchronous control system must be in the same network segment with control computer and LAN port of router, but the IP address shall not be repeated. Same network segment means, for example, all in 192.168.0.XXX network segment.

### 2.2 Internet remote control solution

LED displays are more and more used in various fields, such as advertising, traffic etc. Since it has a large quantity and is widely distributed, updating LED display contents becomes a very heavy work. Internet remote control solution will solve this problem easily. What user needs to do is to operate in front of computer to update play contents of LED display even across regions.

Example is given in Figure 5. Control Computer A locates in Xi’an remotely...
controls displays in Beijing and Shenzhen. The communication principle is, LED control card connects to PlutoManager control platform running in local control computers actively by domain parameters, to establish communication links;

**Hardware:**
- Nova asynchronous control card: PSD100
- ADSL router

**Software:**
- NovaLCT-Pluto
- PlutoManager
- Dynamic domain or static IP

Internet remote control network structure is shown as below:

![Internet remote control network structure](image)

**Figure 6 Internet remote control network structure**
**Set-up steps:**

1) Apply a domain for Router 1 in Xi’an;

2) Configure Router 1.
   
   a) Login Router configuration page in Computer A
   
   b) Configure virtual server
   
   c) Login domain

3) Configure LED display by LCT running in local computer

   With Asynchronous Card ① in Figure 5 as an example, the configuration steps are introduced as below. Operations of other asynchronous cards are similar.

   Users are recommended to use laptop in local to run LCT. Connect Laptop B to Router 2 with Ethernet cable. Make sure that Laptop B and Asynchronous Card ① are in the same LAN.

   a) Runs LCT software in Laptop B. Click “System” → “Search Pluto System” in the main interface. After searching completion, user can view IP of Asynchronous Card ①, select and click “Connect System”;

   b) Return to main interface, click “Settings” →” Network Settings” → Check “Configure system network parameters to connect in LAN” to modify IP of Asynchronous Card ① in LAN. Make sure the IP of Asynchronous Card ① is in the same network segment with IP of Laptop B and IP of Router 2 LAN port. (If no need to modify Asynchronous Card IP, this step can be skipped);
c) Check “Configure Server Parameters to connect in WAN” → Check “Server Domain”, input the domain obtained in step 1;

If the WAN where Control Computer A locates has a static and fixed IP, please input it directly;

![Figure 7 Internet parameters settings]

Figure 7 Internet parameters settings

d) Set Cmd Port (command port + file port). It is not necessary to enter “Senior Setting” usually. Command port default is 31298. File port default is 31299 by adding 1 automatically. Command port and file port can be set respectively in “Senior Setting”.

e) After completion of network parameter settings, click “Send” to send the network parameters to the Asynchronous Card ①.

4) Run PlutoManager in Control Computer A. Click “Configuration” → “Server Configuration” in main interface, as shown below:

![Figure 8 Server settings]

Figure 8 Server settings
1. Connecting port here, Cmd port in Step 3) d), and service port set in the forwarding rules of Router 1 must be the same.

2. Port should be between 1024~49150, can be set as any value with no conflict to other software.

5) Automatically connected Internet Client 1 (Asynchronous Control Card 1) can be seen both in main interface and client management page of PlutoManager software.

### 2.3 3G solution

Users can experience large-file high-speed transmission via 3G communication.

Requirements: LED display area must have 3G signal. Currently WCDMA and CDMA2000 formats are supported. Get to know the 3G format in the area before purchasing 3G router.

**Hardware:**

- Nova asynchronous control card: PSD100
- A 3G router. With SIM card directly inserted in use to make sure more stable transmission signal.
- 3G SIM card

**Software:**

- NovaLCT-Pluto
- PlutoManager
Dynamic domain or static IP

3G solution network structure is shown as below:

![3G solution network structure](image)

**Set-up steps:**

1) Please apply domain, Assume the domain obtained is `novakeji.vicp.net`;

2) Set the Router, please refer to Section 2.2 Set-up Step 2) for details

3) Verification
   
   a) Click the **Start** button of Laptop B and select **Run**. And then ping dynamic...
domain. If the domain is connected, an IP address will be shown. We name it IP Address 1 as shown below:

![IP Address 1](image)

Figure 10 Verification result

b) Login Router in Control Computer A. And then click operating status to view WAN port status and WAN IP. We name it IP Address 2.

c) Make sure the above two IP are the same. This means that Control Computer A can find 3G Router and Asynchronous control card in the Internet, and the two of them can communicate.

4) Run NovaLCT-Pluto in local Laptop B to configure asynchronous system network parameters, please refer to Section 2.2 Set up Step 3) for details.

5) Run PlutoManager in Control Computer A, click “Configuration” → “Server configuration” in main interface as shown below:
2.4 Wifi solution

Wifi solution is to achieve LED display control within a short distance via a wireless router.

**Hardware:**
- Nova asynchronous control card: PSD100
- Wireless router
- Computer (built-in wireless lan card)

**Software:**
- NovaLCT-Pluto
- PlutoManager

Wifi solution network structure is shown as below:
Figure 12 Wifi solution

Set-up steps:

1) Control computer searches wireless router and obtains IP automatically.
   (Control computer and asynchronous control card must be in the same network segment);

2) Run LCT in Control computer. Click “System” →” Search Pluto System” . View IP of asynchronous control card, and then connect to specific asynchronous system.

3) Click “Settings“ →” Network Settings“ in toolbar of LCT main interface, rename the asynchronous system and modify the IP of it. Press “ Send” to send modified network parameters to asynchronous system. (This step can be skipped if no need to modify network parameters).