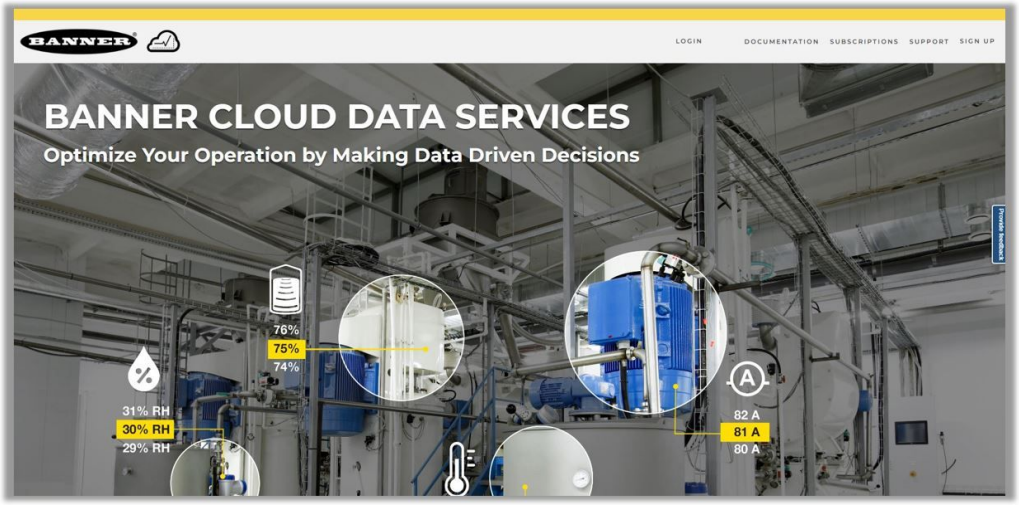
# Banner Cloud Data Services (CDS)

The DXM can be connected to and share data with the Banner Cloud Data Services (CDS), a web-based software platform that allows users to access, store, protect, visualize, and export critical data collected by Banner's DXM Controllers. This subscription-based software solution complements our wireless product portfolio and provides customers with complete end-to-end IIoT solutions to solve the most pressing problems of the industrial market.




Visit the Banner CDS site for account access and technical support at https://bannercds.com. From the home page you can:

- Log into the website if you already have an account
- Subscribe to a data services plan
- Learn more about the subscription service plans
- Access support documentation, videos, and frequently asked questions
- Recover lost passwords

A web services data plan subscription provides cloud storage, data visualization, notifications (alerts), and data management for the DXM. Activating a cellular data plan allows the DXM to communicate using the cellular network.

You can purchase a Banner CDS subscription in two ways:

- Through an authorized Banner distributor as a standard part number
- Online with a credit card at celldata.bannercds.com

After your purchase, you'll receive an authorization code via email. This code is what you'll use to create or extend your account. Some free trial authorization codes may also be included on a printed card in a Banner Cloud ID™ Kit or provided by an authorized distributor.

# Subscribe to the Web Service

To subscribe to a web service, follow these steps.

1. Go to https://bannercds.com and click **Subscriptions**. From the drop-down list, select **View CDS Plans**.
   You will be directed to the support page where you can review the Banner CDS Web Service pricing details. Please use the **How to Choose a Web Service Plan** tool to select the appropriate plan for your application (see Calculating the Data Requirements).
2. After you have determined the appropriate plan, click on the purchase plans from the Banner Engineering link.
   You will be directed to the web service product page on the Banner Engineering website.
3. To create an account with Banner Engineering, click on **Register**. If you have previously created an account, click **Sign In** and enter your information to continue.
4. To purchase a subscription plan:
   a. Return to the web service product page.
   b. Select your chosen web service subscription plan by clicking **Add to Cart**.
   c. Click on **Cart** and/or select **Proceed to Checkout**.
   d. Complete the purchase by following the prompted instructions.

   After the purchase is completed, an authorization code is sent to the email address you entered for your account at www.bannerengineering.com.
5. Create a portal for data collection and transmission on the website. See "Create a New Gateway" on page 2.
6. Configure a DXM Controller to push data to the website portal. See "Modifying the XML Configuration File" on page 3.

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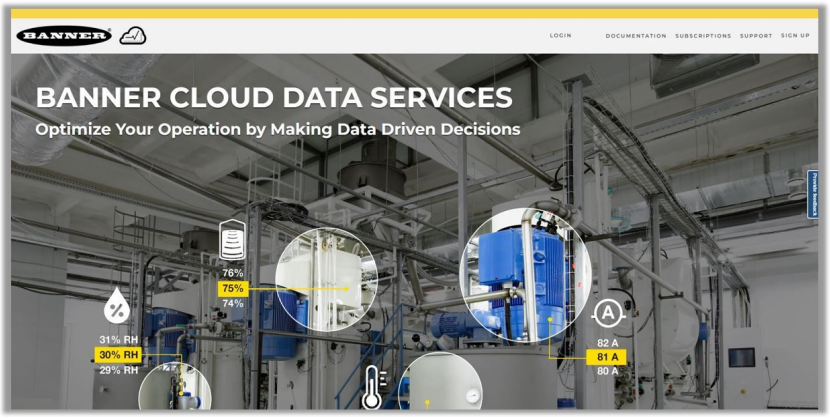
# Logging into the Web Service

The web server captures data from the DXM using either a cellular connection or an Ethernet connection. Users collect and view the data or update and manage the DXM using a web browser.

Within a few minutes of your purchase, you will receive an email with your authorization code and details regarding the data subscription service. If the authorization code is not received within 10 minutes, please check your spam folder or contact Banner Engineering at 1-888-373-6767 to obtain the code.

Use both the website and the DXM Configuration Software to set up and configure your data collection. Use the latest version of your browser (Google Chrome is recommended) and enter the URL: https://bannercds.com. The login page appears.

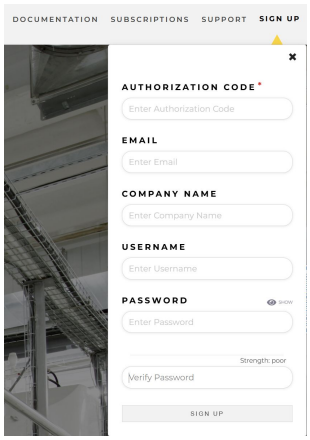
*Banner CDS home screen*




## Create an Account

Follow these steps to create an account.

1. Click on **Sign Up**.
2. A prompt requests the emailed **Authorization Code**, an **Email** address, **Company** name, **User Name**, and **Password**.
3. Click **Sign Up** and agree to the Terms & Conditions when prompted.




## Create a New Gateway

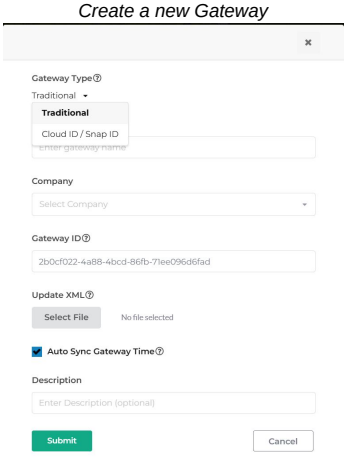
Each Gateway in the BannerCDS corresponds to a DXM Controller that sends data to the BannerCDS platform.

After you log in to the Banner Cloud Data Services website, the **Overview** screen displays. Follow these steps to create a new monitoring site.

There are two connection methods:

- Traditional Method – Used in most cases; requires entering a Gateway ID into the DXM XML configuration
- Auto-Discovery Method – Used only for Smart Solutions Starter Kits and Expansion Kits; requires the DXM serial number

*Create a new Gateway*




1. From either the **Overview** screen of the Gateways screen, click on **+ New Gateway** (top right corner of the screen).
   A **New Gateway** pop-up window appears.
2. Select the **Gateway Type**.
   - For most configurations, select **Traditional**.
   - For Cloud ID or SNAP ID products, select **Cloud ID/SNAP ID**.
3. Enter a **Gateway Name**.
4. Select the **Company** from the drop-down list.
5. For Traditional configurations, copy the **Gateway ID** number located within the prompt window to your computer's clipboard. For Cloud ID/SNAP ID configurations, enter the **DXM Serial** number.

   The **Gateway ID** number created by the web server is a required parameter in the configuration of the DXM. The **Gateway ID** is the address the webserver uses to store the data pushed from the DXM.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6. Enter an optional **Description** of this gateway/controller.
7. Click **Submit** to close the prompt window.
8. For **Traditional** configurations, go to the DXM Configuration Software:
    a. Go to the **Settings › Cloud Services › Web Server.** screen.
    b. Enter the **Gateway ID**.
    c. Save the XML configuration file.
    d. Upload the XML configuration file to your DXM Controller.
    e. On the BannerCDS website, select your Gateway and click the Edit icon (left column).
    f. Upload the updated XML configuration file and **Save**.

The DXM Controller begins pushing data to BannerCDS.

# Modifying the XML Configuration File

Use the DXM Configuration Software to configure the operation of the DXM.

Launch the software. You can use one of these three screens to modify registers:

- **Local Registers**—Edits individual registers
- **Modify Multiple Registers**—Edits multiple registers at the same time
- **Local Registers in Use**—Edits individual registers

Refer to the DXM Configuration Software Instruction Manual (p/n 209933) for more details.

## Edit Registers Using the Local Registers in Use Screen

Use this screen to modify the parameters of any local registers being used.

*Edit Register tab*




1. Go to the **Local Registers › Local Registers in Use › Edit Register** section of the bottom of the screen.
   A list of the local registers being used displays.
2. Under the **Selected Register** box, select the register to define or modify. You may select the register by using the up/down arrows, directly entering a register number into the field, or clicking within the corresponding row in the **Local Registers in Use** table.

   Only Local Registers that have already been changed from their default configuration are displayed in the **Local Registers In Use** table.
3. Using the drop-down lists, assign a name, register group, change the units, or make other configuration changes to this register.
4. To push register values to the web server, set **Cloud Settings** to read.

   If **Cloud Settings** are set to Read, the web server only views data from the device and cannot write data to the device. If the permissions are set to Write, the web server only writes to the device and cannot read the data. If the permissions are set to Read/Write, the web server can read the data from the device and write to the device from the web.

The changes are automatically applied within the software, not the XML file. To change another register, use the up or down arrows to select another register number. To save these changes to the XML file, go to **File › Save**.

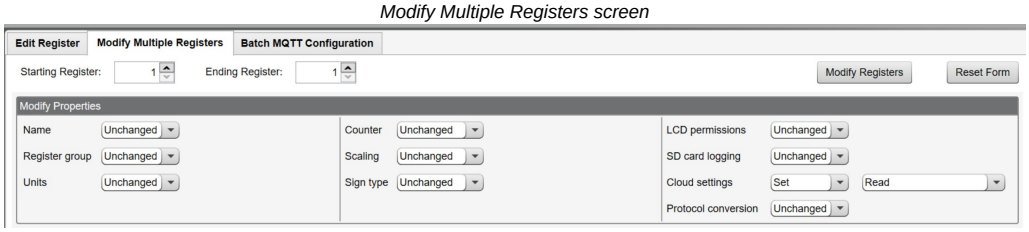
## Modify Multiple Registers

Modify a range of registers from the **Local Registers › Local Registers in Use › Modify Multiple Registers** screen.

Select which parameter fields to modify. Most parameters have three selections.

- Unchanged—no changes
- Default—change to default settings
- Set—modify the parameter. Other selections will appear based on the parameter.

*Modify Multiple Registers screen*




1. Enter the **Starting register** and **Ending register**.
2. Select the value to change using the drop-down list next to each value.
3. Enter the new value in the field provided.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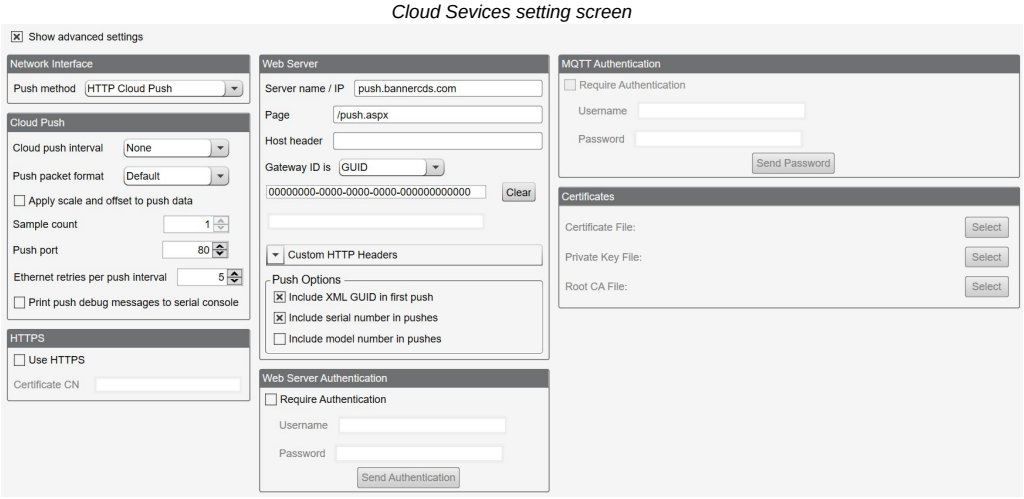
4. To push register values to the web server, set **Cloud Settings** to **Read**.

   If the **Cloud Settings** are set to **Read**, the web server only views data from the device and cannot write data to the device. If the permissions are set to Write, the web server only writes to the device and cannot read the data. If the permissions are set to Read/Write, the web server can read the data from the device and write to the device from the web.
5. Click **Modify Registers** to save and apply the changes.

## Configure the Cloud Data Services Settings

1. To configure the connection to the web server, go to the **Settings › Cloud Services** screen.

*Cloud Sevices setting screen*




2. Copy and paste the **Gateway ID**.

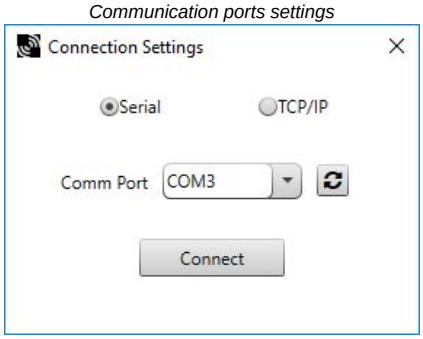
   The **Gateway ID** is the long string of numbers and letters from the Banner Cloud Data Services website.
3. Verify the **Server Name/IP** is set to `push.bannercds.com` and the **Page** is set to `/push.aspx` for sending to the website (verify Show Advanced Settings is selected).
4. Set the **Cloud Push Interval** to a value appropriate for your application.

   The **Cloud Push Interval** determines how often the device pushes the data to the web. The faster the push interval, the more data is sent to the site. Cellular plans can only push at an interval of 5 minutes or longer, while Ethernet connections can push at an interval of 1 minute or longer. The **Sample Count** specifies how many times the data is gathered within the **Cloud Push Interval**(Advanced Settings).

   For example, if the **Cloud Push Interval** is 15 minutes and the **Sample Count** is set to 3, then during each data push (every 15 minutes), 3 samples are sent to the web. This is one sample every 5 minutes.
5. Save the configuration file by going to **File › Save**.

   File names must be no more than 30 characters long, and should not contain any spaces or special characters.
6. With a USB cable connected to the device, go to the **Device › Connection Settings** menu.
7. Select the appropriate **Comm Port** and click **Connect**.

*Communication ports settings*




   If multiple comm ports are visible, try each one until the software is able to connect to the device.
8. Go to **Device › Send Configuration to the Device** to upload the new XML file.

# Upload the XML Configuration File to the Website

To upload an XML configuration file to the website, follow these instructions.

1. On the BannerCDS website, select **Gateways** on the **Overview** screen.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2. On the row displaying your **Gateway**, click the **Details** under **View**.
3. Select **Edit Gateway**.
   The **Edit Gateway** prompt appears.
4. Click **Select File** under **Update XML**.
5. Select the file that was just updated to the DXM and click **Open**.
   After the XML file is loaded into the webserver, the webserver uses the register names and configurations defined in the configuration file. The same XML configuration file is now loaded on both the DXM and the Website. After some time, the data should be seen on the website.
6. To view the data from the Gateway's screen, click on the **Details** link for each **Gateway**.
   The Gateway **Details** screen lists the **Sensor** objects and default **Alarms** for that gateway. You may view the individual register information by selecting **Registers**.

Completing these steps creates continuity between the **Gateway** created on the website with the DXM used in the field. The DXM pushes data to the website, which can be viewed at any time.

# Web Services Features

For more information on each of these features, see the Banner Cloud Data Services (CDS) Instruction Manual.

**Compare Graphs of Multiple Registers**
Compare two or more register values on the same time graph.

**Create FTP Backups or Download Data for Backup**
Back up registers, upload logs, alarms, updates, and audits to an FTP address that can be accessed with a username and password created by the user.

**Create New Companies and Users**
This feature is only available with certain subscriptions. Limits may be placed on the number of companies or users a subscription can have.

**Create Spreadsheet Tables**
Create data tables to view numbers in a spreadsheet-style format.

**Set Alarms**
Set alarms when a register reaches or is compared to a certain numerical value. Alarms can also be used for connectivity problems, MAC alerts, geofence alerts, or register limits. If an alarm is activated, emails can be sent automatically to preset addresses.

**Updating Script or XML via Web**
Download an XML file from the DXM or upload a new XML to the DXM without having the device connected to a computer via USB.

**Use Log Viewer for Viewing Past Data**
Display graphs of data logged to the SD card, backed up previously to an FTP site, or downloaded.

**View Graph of Individual Registers**
View a graph of register values over time.

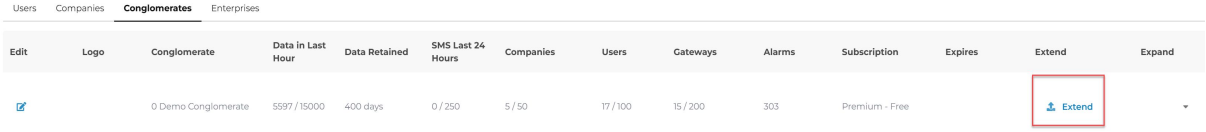
**Write to Registers via Website**
Set Cloud Permissions to Write or Read/Write in the DXM Configuration to write to the DXM from the website. Instead of using the LCD on the DXM or waiting for an input value, users can write certain register values directly to the DXM from the cloud site.

# Upgrade or Extend an Existing Subscription

If you're upgrading from a free trial or extending an existing plan, you'll receive a new authorization code via email or from your distributor.

Follow these steps to apply the new code.

1. On the BannerCDS website, go to the **Admin › Conglomerates** page.




2. In the pop-up window, enter your new **Authorization Code**.
3. Click **Save**.
   Your plan is upgraded or extended.

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