



# ICU Medical MedNet™ Meds™

## User Guide

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For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support.

**Notes:**

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# ICU Medical MedNet™ Meds™

## User Guide



REF 16037-92-02

### IMPORTANT

Refer to this guide for proper use, warnings, and cautions associated with the installation and upgrade of the ICU Medical MedNet™ Meds™ Software performed by the ICU Medical Service Team. Please contact your sales representative for any questions associated with installing and configuring the ICU Medical MedNet™ Meds™ Software. The help files included with the ICU Medical MedNet™ Meds™ software are provided as reference only. Please read this entire guide before using the ICU Medical MedNet™ Meds™ Software.

Please also read the ICU Medical Release Notes before using the ICU Medical MedNet™ Meds™ Software.

### Intended Use

The ICU Medical MedNet™ Medication Management Suite (MMS) is intended to facilitate networked communication between MMS compatible computer systems and MMS compatible Infusion pumps. The MMS provides trained healthcare professionals with the capability to send, receive, report, and store information from interfaced external systems, and to configure and edit infusion programming parameters.

The MMS is intended to provide a way to automate the programming of infusion parameters, thereby decreasing the amount of manual steps necessary to enter infusion data. All data entry and validation of infusion parameters is performed by a trained healthcare professional according to physician's orders.

**For a list of ICU Medical MedNet™ compatible devices approved for your country with their software versions; for assistance with ICU Medical MedNet™ and ICU Medical MedNet™ Meds, or to access the knowledge-based articles, contact:**

**in the USA  
The ICU Medical Technical Support Center  
1-800-241-4002**

**outside the USA  
The local ICU Medical Sales office**

**From our ICU Medical website, you can access the MedNet User Guides in the support section under *System Operating Manuals and Technical Service Manuals*.**

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# Change History

**Part Number**

430-98430-001 (A, 2018-05)

**Description of Change**

Initial Release

**Note:** Subsequent to the Initial release (Revision A), revisions to this guide will be tracked numerically instead of alphabetically.


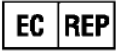






430-98430-001 (02, 2018-07)

Updated Australian Sponsor information

430-98430-001 (03, 2018-09)

Updated values in the Infuser Data Disk Space table on page 6.

# Symbols Glossary Table

Symbol	Name and Meaning	Standards or Regulations	Reference
	Manufacturer	EN ISO 15223-1 Medical devices: Symbols to be used with medical device labels, labelling and information to be supplied	5.1.1
	Authorised Representative in the European Community		5.1.2
	Date of Manufacture - the date when the software build was completed		5.1.3
	Catalogue or Product List Number		5.1.6
	Consult the instructions for use provided electronically in the software		5.4.3
	Caution - Consult the instructions for use for precautions and warnings (in yellow)		5.4.4
	CAUTION: Federal (USA) law restricts this device to sale by or on the order of a doctor or other licensed practitioner	21 CFR 801 Labeling	N/A
	CE mark	Council Directive 93/42/EEC concerning medical devices	N/A

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**Notes:**

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# Chapter 1: Introduction

ICU Medical MedNet™ is a server-based safety software product intended for use in healthcare facilities by trained healthcare professionals to provide valuable bedside guidance by managing IV infusion information with compatible ICU Medical infusion systems. The ICU Medical MedNet™ suite of software also includes a separate application, ICU Medical MedNet™ Meds™.

ICU Medical MedNet™ software enhances safety at the point of care with highly customizable drug libraries that guides users and help to protect patients by alerting to hard and soft, upper and lower dosing limits intended to help prevent infusion errors. These limits are based on a hospital's specific IV administration practices.

ICU Medical MedNet™ software reduces manual programming steps by providing the option to allow pharmacy settings to flow directly into the compatible infusion pumps through the IV EHR Interoperability solution. ICU Medical MedNet™ software connects the pharmacy validated medication order with the infusion pump and the patient's electronic health record (EHR), providing the opportunity for automated programming of the infusion pump.

ICU Medical MedNet™ software generates more than 20 different reports based on data, settings, and changes that are automatically collected from the compatible infusion pumps. The generated reports help to turn data into actionable data to provide visibility to clinical practice. Depending on the EHR system capability, automated documentation in the EHR is also supported by ICU Medical MedNet™.

ICU Medical MedNet™ software packages consist of the components listed below. The specific components available to you will depend on your institution's license.

**ICU Medical MedNet™ Administrator™** provides the ability to manage system users, infusers, drug library downloads, infuser software updates, access points, and other configurations.

**ICU Medical MedNet™ Connect™** establishes the connectivity between the ICU Medical MedNet™ server and the infusers. It incorporates ethernet and wireless components permitting ICU Medical MedNet™ Meds™ and ICU Medical MedNet™ Administrator™ to exchange information with infusers.

**ICU Medical MedNet™ Integrator™** provides interfaces to a hospital's enterprise level applications and serves as the conduit for the exchange of data between infusers, the ICU Medical MedNet™ server, and a variety of hospital information systems.

**ICU Medical MedNet™ Meds™** provides functionality to the pharmacy for the definition and management of medications, drug libraries, clinical care areas, and infuser configurations.

**ICU Medical MedNet™ Performance™** delivers data from the ICU Medical MedNet™ server into reports designed for asset management as well as clinical assessment of ICU Medical MedNet™ use with selectable options to best meet the needs of the user.

**ICU Medical MedNet™ Programmer™** takes medication dispensing orders from the Bar Code Medication Administration (BCMA) system and translates them into operational commands which automatically populate settings on the infuser. For more information, see **ICU Medical MedNet™ Software User Guide**, Appendix B.

# Terminology

This document uses the following conventions:

- References to specific values are approximations only, unless otherwise indicated.
- The terms “ICU Medical MedNet™ Software” and “the Software” are used interchangeably throughout this manual.

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**Note:** Illustrations and screen representations are for illustrative purposes only and may vary from the actual software. Your computer’s display settings may affect screen representations.

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**Note:** The ICU Medical MedNet™ user interface uses "Auto-Documentation" as an alternative name for Infusion Documentation, and "Auto-Programming" as an alternative name for Smart Pump Programming.

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## General Warnings and Cautions

The following conventions are used in this user guide to denote warnings or cautions:



**CAUTION:** Contains information that could prevent product damage or hardware failure. Failure to observe a caution could result in patient or user injury.



**WARNING:** Warning messages contain special safety emphasis and must be observed at all times. Failure to observe a warning message is potentially life threatening.



**CAUTION:** Federal (USA) law restricts this device to sale by or on the order of a physician or other licenced practitioner.

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# Computer Management and Security

- Except for virus data files (typically called “dat” files), do not install upgrades, service packs, or patches to non-ICU Medical software, except as authorized by ICU Medical.
- Do not enable automatic updates to operating systems on computers on which ICU Medical MedNet™ Software is installed.
- Ensure that procedures are in place for backing up and restoring data, and that administrators can successfully restore data from earlier backups.
- Ensure that the network on which ICU Medical MedNet™ Software is used has effective security procedures in place, including physical and network access control.
- Ensure that user passwords are protected.
- Ensure a backup power supply (uninterrupted power source) is available to prevent critical data loss.

**Important:** We highly recommend that you regularly backup and purge your database. A database can grow to a large size that will affect the performance of your ICU Medical MedNet™ system.

Although we suggest to purge a database every four years at a minimum, if you have more than 2,000 infusers it would be wise to consider doing so more often.

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**Note:** It is your organization’s responsibility to assure a safe, validated, and functioning environment. This includes providing proper training of hospital staff, protecting systems, controlling medical devices from cyber-security threats, and performing maintenance on hardware. Your IT department should also provide physical security for PCs and server hosts.

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## Handling Infusers

- Refer to the *System Operating Manual* for the applicable infuser for warnings and cautions before handling the infusers.
- Use care when handling connectors and cables.
- Avoid twisting or bending cables and connectors.
- Ensure compliance to IEC 60601-1-1 for connecting accessories to medical devices.

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**Note:** The infusion devices compatible with ICU Medical MedNet will display selectable options based on your licensing and ICU Medical's compatibility matrix.

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## Transferring Data

- Ensure that only one instance of the ICU Medical MedNet™ Meds™ software is running on a computer at a time.

# Minimum System Requirements

The ICU Medical MedNet™ system is installed by a highly trained ICU Medical Service team. Please consult with the ICU Medical Service team for information regarding the preparation of servers and interfacing with 3rd party systems.

The following minimum system requirements are for the ICU Medical MedNet™ program, including the ICU Medical MedNet™ Software and ICU Medical MedNet™ Meds™.

**Important:** The ICU Medical MedNet™ Software has been developed and tested using the hardware components and software application versions described below. To ensure support, the minimum hardware configurations listed below must be met.

In virtual environments, reserve a minimum of 100 GB of storage. Depending on the infuser type and number of infusers, the storage requirements may grow to 1 TB over the product's expected life cycle.

## Distributed SQL Environment

**Important:** Recommended for Auto-Programming (Smart Pump Programming) and IHE-based client solutions for optimum performance. Recommended for installations needing to support between 500 and 2,000 infusers.

For a distributed environment when ICU Medical MedNet software is on one machine and the ICU Medical MedNet database is physically located on another machine. You will need the following:

- A server\* to house the ICU Medical MedNet Software (Server 1)
- A server\* to house the ICU Medical MedNet Database (SQL) software (Server 2)

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**Note:** For HMSS Server: Hex (6) Core Intel Xeon Processor (e.g. X5675) - 3.0 GHz or better and  
For SQL Server: Quad (4) Core Intel Xeon Processor (e.g. X5675) - 3.0 GHz or better

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Each machine should meet the following requirements:

- 12 GB RAM (6 GB allocated to ICU Medical MedNet HMSS Service)
- Redundant power supply
- SAS hardware RAID 1+0 controller card (minimum recommended RAID level 1+0)
- Reserved database disk space (see Recommended Disk Space table)
- 10-15K-RPM 6-Gb/s SAS disk drives or equivalent SSD drives
- Dual Gigabit Ethernet NICs with link aggregation support
- Internet Protocol version 4 (IPv4)
- USB port
- Backup capability

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**Note:** \*Install the software described below, including the security/Windows updates on **each** of the two servers. Security updates can be obtained from the ICU Medical Technical Support Center or downloaded from the Microsoft website.

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## Full Server

This configuration is to support up to 500 infusers when using the following minimum configuration:

### **Hardware**

- Quad Core Intel Xeon processor - 3.0 GHz or better
- 12 GB RAM (6 GB allocated to HMSS Service)
- Redundant power supply
- SAS hardware RAID controller card (minimum recommended RAID level 1+0)
- 10-15K-RPM 6-Gb/s SAS disk drives or equivalent SSD drives
- 120 GB Hard Drive for operating system
- Dual Gigabit Ethernet NICs with link aggregation support
- Internet Protocol version 4 (IPv4)
- USB port
- Backup capability

## Mini Server

This configuration is to support 100 infusers when using the following minimum configuration:

### **Hardware**

- Dual Core Intel Xeon processor - 3.0 GHz or better
- 12 GB RAM
- Redundant power supply
- 10-15K-RPM 6-Gb/s SAS disk drives or equivalent SSD drives
- 120 GB Hard Drive for operating system & HMSS
- Dual Gigabit Ethernet NICs, with link aggregation support
- Internet Protocol version 4 (IPv4)
- USB port
- Backup capability
- Keyboard, mouse, and monitor

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**Note:** We recommend this configuration for test servers.

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## Recommended Disk Space

The recommended disk space for the MedNet™ database is dependent on the type and count of infusers connected to MedNet™. ICU Medical recommends having a least enough disk space to store 4 years' worth of infuser data.

Infuser Data Disk Space				
Pump Configuration	1 Infuser per Year	500 Infusers per Year	1000 Infusers per Year	2000 Infusers per Year
LifeCare PCA	40 MB	20 GB	40 GB	80 GB
Plum A+ 13.x	40 MB	20 GB	40 GB	80 GB
Plum 360 15.x	250 MB	125 GB	250 GB	500 GB
Q Core SapphirePlus 14.x	250 MB	125 GB	250 GB	500 GB

Note: If the recommend disk space is 80 GB per year, 4 years of data would require 320 GB of disk space, which would reside on a RAID 1+0 setup, requiring 640 GB of disk space.

### Wireless Connectivity

Depending on wireless connectivity, the Plum 360 and SapphirePlus infusers can generate extra data that gets stored in the database, e.g. log messages. Therefore, we highly recommend monitoring the disk usage during the first few months of deployment to determine the rate of disk space consumption.

### Software for ICU Medical MedNet server

- Microsoft Windows 7 Professional, or Microsoft Windows 10 Enterprise, or Microsoft Windows Server 2012 R2 Standard with Update, or Microsoft Windows Server 2016
- Microsoft SQL Server 2014 Standard Edition with Service Pack 2, or Microsoft SQL Server 2016 Standard Edition with Service Pack 1
- Internet Explorer 9, or 11 configured in compatibility view
- Adobe Reader 9, 10, or better
- The ICU Medical MedNet Software
- The ICU Medical MedNet Meds software
- McAfee Virus Scan Enterprise 8.7.0i or better (Optional)

**Important:** We strongly recommend the use of a virus checking software. However, we suggest you consider ignoring scanning directories where the datafiles reside or to ignore MDF and LDF type files. Updates or changes to the antivirus software after installation could affect ICU Medical MedNet server performance.

Tip: Please consult the ICU Medical Technical Support Center's article **Configuring Antivirus Software on an ICU Medical MedNet server**.

## Microsoft Windows Server Security Updates

Please contact the ICU Medical Technical Support Center for the validated Microsoft Windows Security Updates to be used with ICU Medical MedNet™.

**Important:** The above configurations are for licensable features of ICU Medical MedNet including Auto-Programming (Smart Pump Programming), Auto-Documentation (Infusion Documentation) and Enhanced Asset Tracking via the ICU Medical MedNet Clinical Integration Interface.

*Calling ICU Medical MedNet Clinical Integration interface `GetPumpStatus`, `GetMatchingPumps` to retrieve information from the ICU Medical MedNet server should occur on a low frequency to avoid overwhelming the server and interrupting normal operations.*

## Client Computers

The Client is used to host the web browser. Most computing is done on the server but display and processing of 1,000-2,000 infusers may need significant client side memory as well.

### **Hardware**

- 1 GHz or faster 32-bit (x86) or 64-bit (x64) processor
- 2 GB of RAM or better
- 40 GB hard drive or better
- Network adapter (Ethernet or Wi-Fi)
- CD or DVD drive
- USB Port

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Note: Most laptops and desktops can support this hardware configuration.

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### **Software (Web Browser Access to ICU Medical MedNet Server)**

- Microsoft Windows 7 Professional, or Microsoft Windows 10 Enterprise, or Microsoft Windows Server 2012 R2 Standard with Update, or Microsoft Windows Server 2016
- Internet Explorer 9, or 11 configured in compatibility view
- Adobe Reader 9, 10, or better

## ICU Medical MedNet™ Meds™

### Hardware

- 1 GHz or faster 32-bit (x86) or 64-bit (x64) processor
- 2 GB of RAM or better
- 40 GB hard drive or better
- Network adapter (Ethernet or Wi-Fi)
- DVD Drive
- USB port for installation

### Software

- Microsoft Windows 7 Professional, or Microsoft Windows 10 Enterprise, or Microsoft Windows Server 2012 R2 Standard with Update, or Microsoft Windows Server 2016
- Internet Explorer 9, or 11 configured in compatibility view
- Adobe Reader 9, 10, or better
- ICU Medical MedNet Meds software

## Additional Non-ICU Medical Software

- Jasper Server Professional 3.1
- JavaService 2.0.10
- JBoss Application Server 4.2.3 (including an embedded Apache Tomcat container and XML parser)
- Java Runtime Environment 1.8.0\_162
- JDK 1.8.0\_162
- jTDS Java Database connectivity (JDBC) driver 1.3.1-hsp
- Q Core Mediator for use with SapphirePlus 14.5

## General Notes

It may only be necessary to install anti-virus software once, at the end of the entire installation process, to ensure system safety; if there is any question, consult with your System Administrator regarding advisability of when to perform this step.

Illustrations and screen representations are for illustrative purposes only and may vary from the actual software. Your computer display may affect screen representation.

Some features and infuser types described in this document are enabled by the software license agreement. Your license may not enable all of these features and infuser types.

ICU Medical MedNet is intended to communicate with multiple compatible infuser types. Some infuser types may not be available in a country or region, and references in this guide are not intended as a promotion of those infuser types. For a list of infuser types available in your country or region, please refer to the ICU Medical MedNet Device Compatibility Matrix available through the Technical Support Center.



# Chapter 2: Logging In and Out

## Logging In

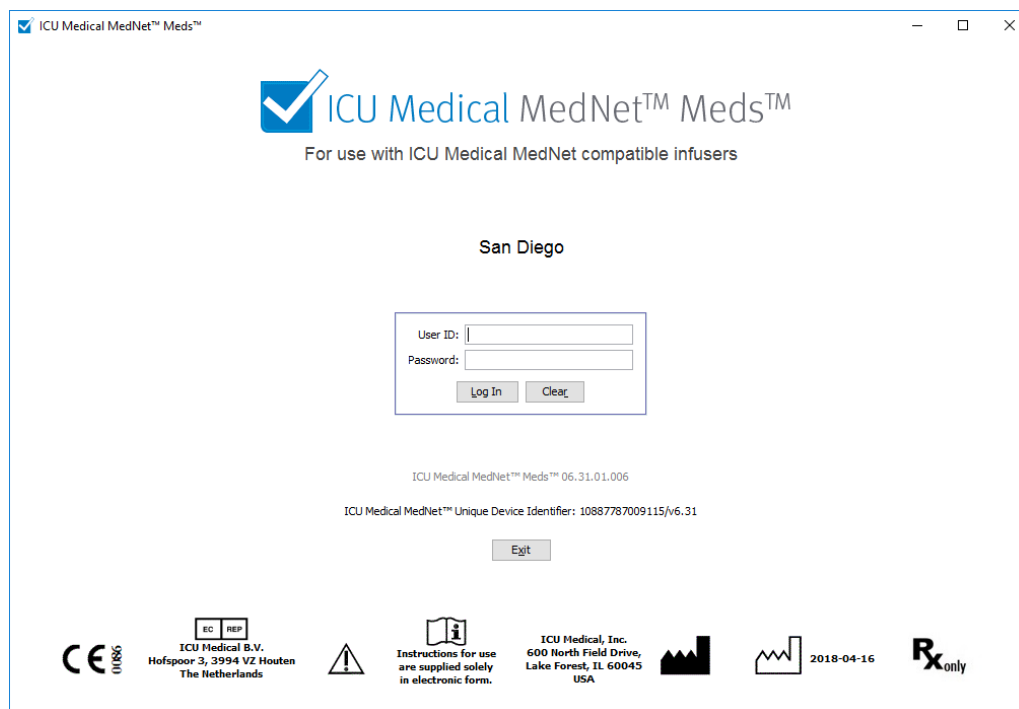
To log into the ICU Medical MedNet Meds software:

1. Double-click the ICU Medical MedNet Meds 6.31 icon on the Windows desktop.



2. Enter your user ID and a strong password into the appropriate fields. Each field must be between 8 and 20 characters.

**Note:** ICU Medical MedNet Meds enforces a strong password. A strong password is at least eight characters, including at least one number, one symbol, and mixed-case characters.



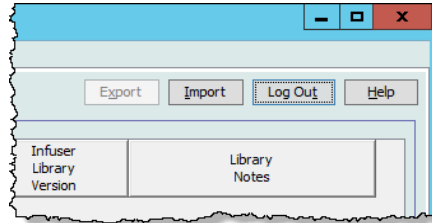
3. Click **Log In**. The ability to log in, and to finalize a worksheet as described in [Finalizing Worksheets](#) on page 65, ensure the application was installed successfully.

**Important:** As a protection against cyber attacks, and if you do not have administration privileges, five missed logins will result in the application being inaccessible. You will then need to contact the System Administrator to reset the password. If the System Administrator is locked out after five missed logins, the application will be inaccessible for five minutes after which the System Administrator can attempt to log in again.

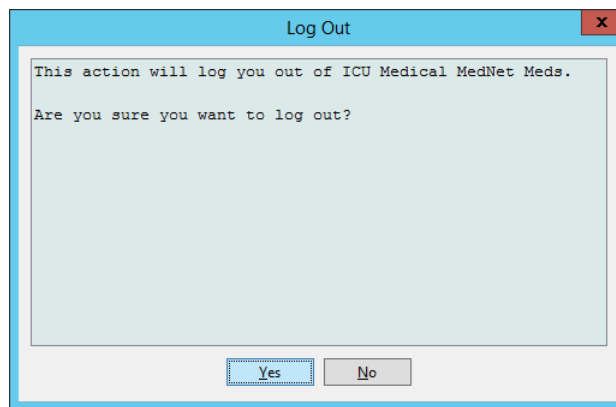
# Logging Out and Exiting

To log out of ICU Medical MedNet Meds software:

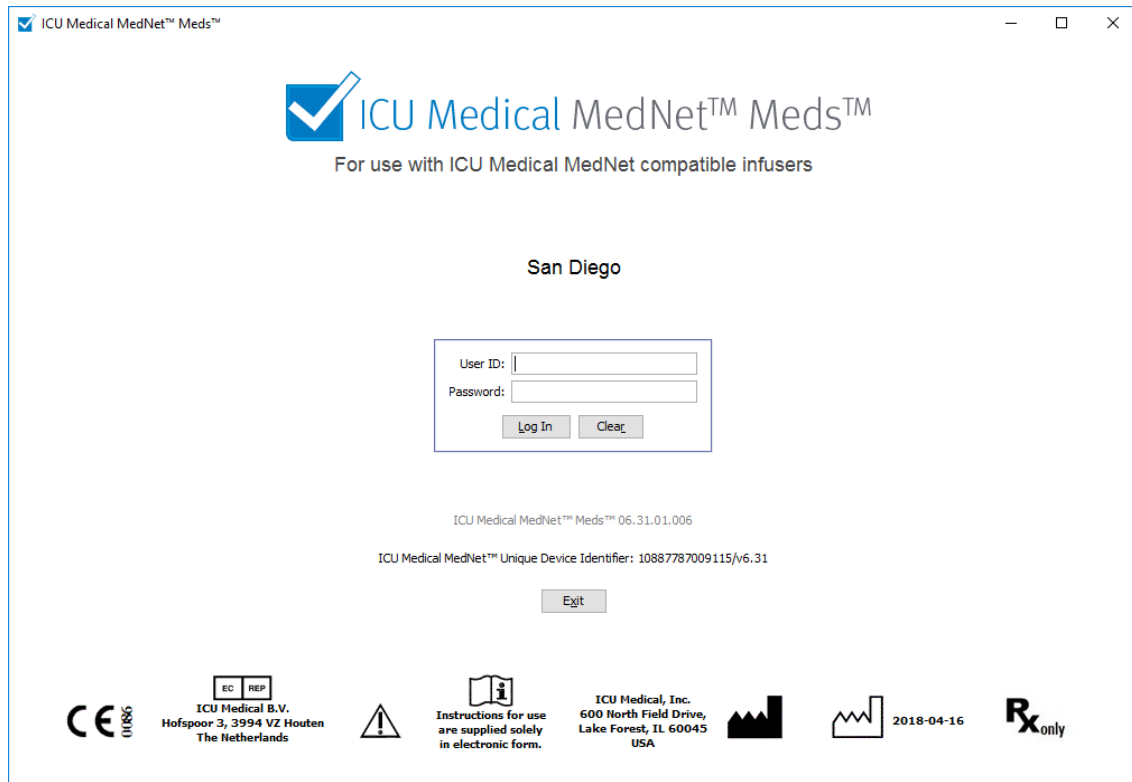
1. Click **Log Out**.



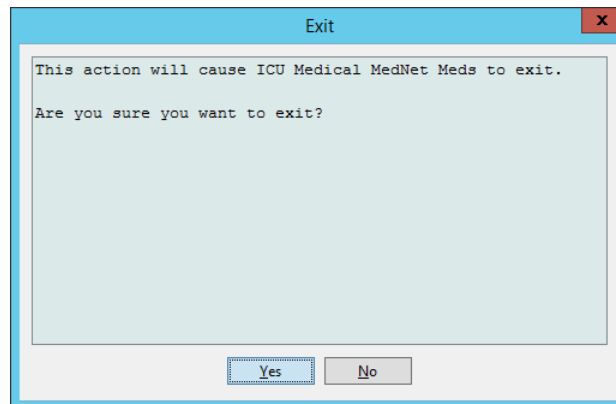
2. Click **Yes**.



### 3. Click **Exit**.



### 4. Click **Yes**.



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**Note:** You will be automatically logged out of the application after 60 minutes of inactivity.

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## Notes:

# Chapter 3: Configuration and Certificate Management

## Overview

The configuration view allows you to set either English (United States) or any licensed language. Once you make a selection, the software will display all information in that language.

Libraries associated with a language will be viewed, edited, imported or finalized in that language option.

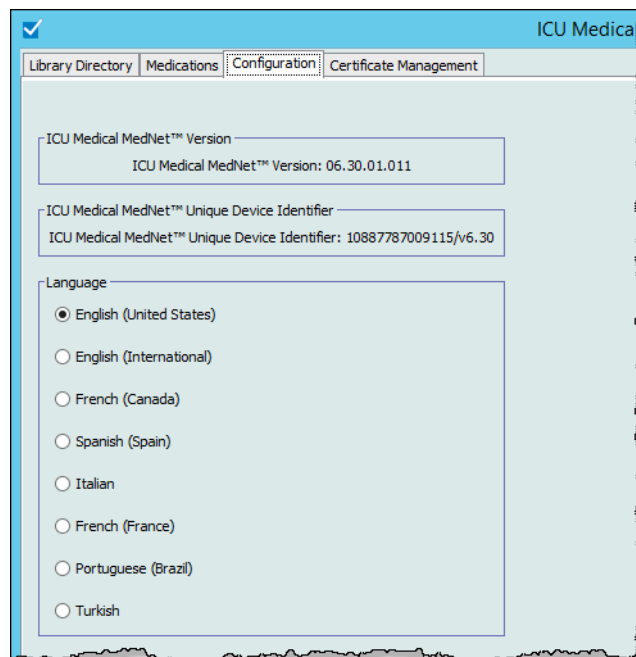
For English (United States), the date format is displayed as mmddyyyy, and the distal pressure unit is psi.

Depending on the country selected, the date format could be displayed as follows:

- dd/mm/yy
- dd/mm/yyyy
- dd/mmm/yy
- dd/mmm/yyyy

and the distal pressure unit as either mmHg or psi.

You will need to navigate to the Configuration tab and make your selection.



Click **Save** and the appropriate language will be applied immediately.

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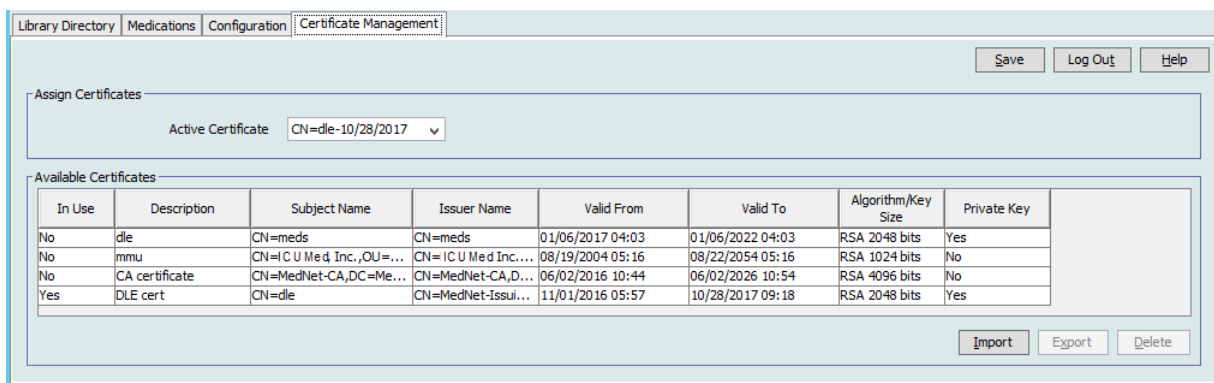
**Note:** The language selected in ICU Medical MedNet Meds will automatically apply to the ICU Medical MedNet Software.

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# Certificate Management

**Important:** You must install certificates before you can use the ICU Medical MedNet Meds application with your ICU Medical MedNet server. These certificates are used to secure communication between the ICU Medical MedNet Meds application and your ICU Medical MedNet server.

The ICU Medical Technical Support Center or your local ICU Medical representative can help create and install these certificates.



Following are the ICU Medical MedNet supported certificate formats:

## Suitable for Import:

Format	Encoding		Contents
	DER encoded binary	Base64 PEM	
X.509	Yes	Yes	Certificate only (no private key)
PKCS #7	Yes	Yes	Certificate chain only (no private key)
PKCS #8	Yes	Yes	Private key only (no certificate)
PKCS #12	Yes	N/A	Certificate with private key

ICU Medical MedNet Meds can import password and non-password protected private keys.

The following three files must be installed:

- CA certificate - .cer file
- MedNet (HMSS) certificate (without private key) .cer file
- DLE (ICU Medical MedNet Meds) certificate (with private key) password-protected .p12 file

## Importing Certificates

You will need to create the certificates and .p12 files.

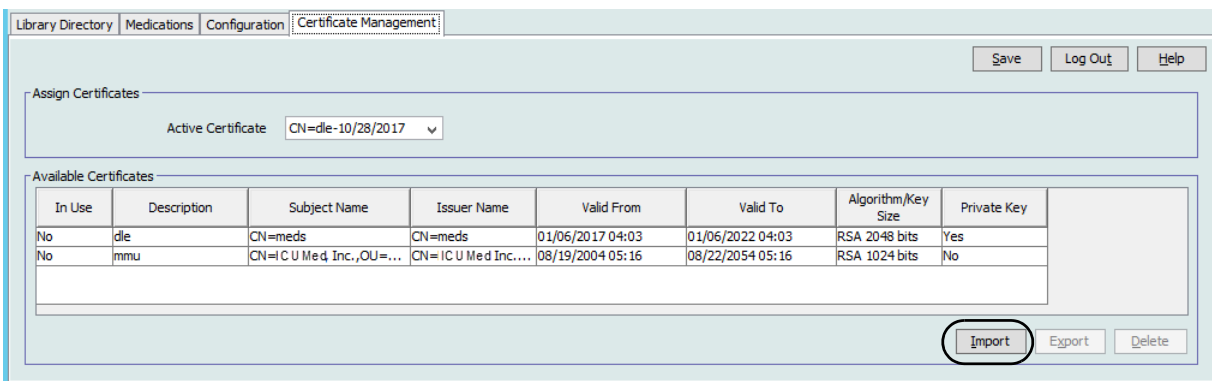
DLE certificates	
Type	Description
CA.cer	The digital certificate from the Certificate Authority that issued the HMSS and DLE certificates
HMSS.cer	The HMSS HTTPS certificate
DLE.p12	Certificate with private key for mutual authentication with HMSS

### Initial installation of certificates:

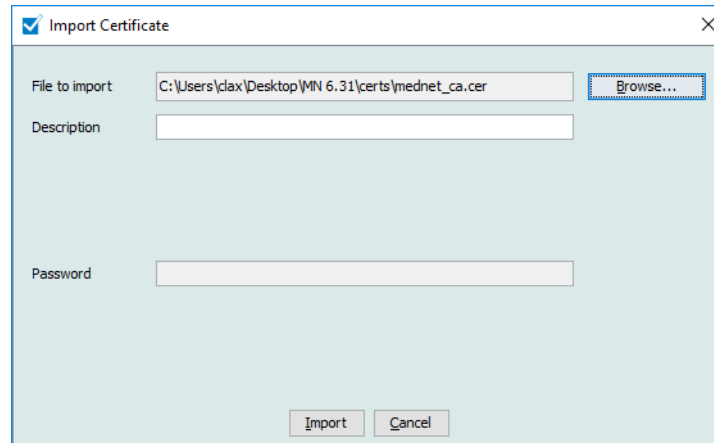
When you first install MedNet Meds, you will need to import each certificate into the application one at a time. That is:

- CA.cer
- HMSS.cer
- DLE.p12

1. From the Certificate Management view, select **Import**.



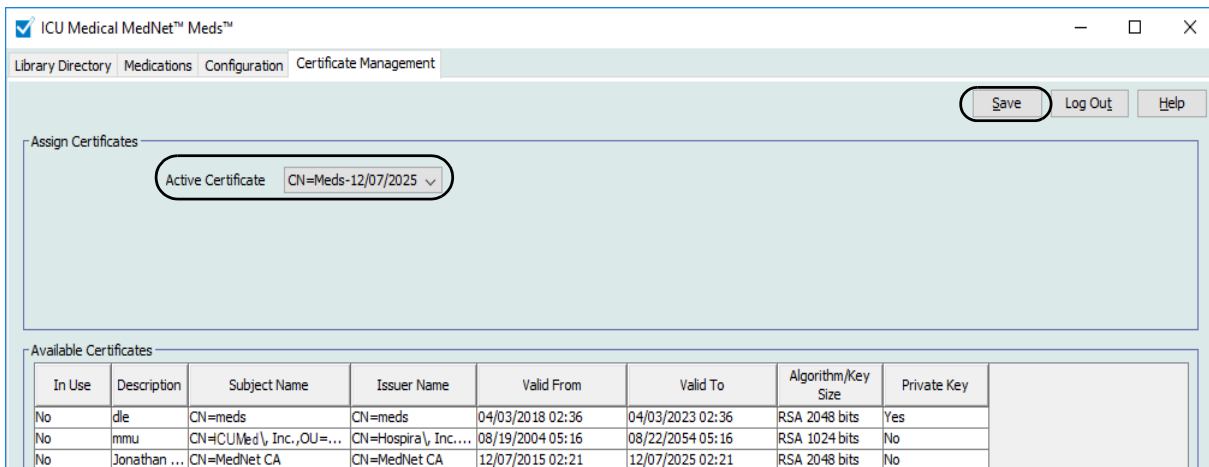
2. Using the **Browse...** button, locate the certificate to be imported.
  - Once located and highlighted, click **Open** and the File to Import will be populated with the certificate location.



- Enter a description
- For the .p12 file only: enter its password

Click **Import**.

3. From the **Active Certificate** field, select the DLE.p12 certificate from the drop-down list.
4. Click **Save**.



5. Restart the application.

**Important:** After the initial installation of the certificates, **do not import** any certificate for any subsequent installation of the application or when using the application on a separate computer. Instead, verify the certificate exists in Certificate Management by selecting the certificate, clicking **Save**, then restarting the application.



**Additional Information:**

You can export a certificate to a specified location. For certificates with private key (.p12), you will need to provide a password and confirm the password when performing the export.

You can only have one single active certificate selected at a given point of time.

You can delete unused certificates from the Active Certificate drop-down list.

## Notes:

# Chapter 4: Medication List

## Overview

The **Medication List** is the list of medications used by the hospital; it contains important data elements used in the development of drug libraries for the infusers used in your hospital.

In this chapter, you will learn how to create, import, and manage the Medication List. The chapters that follow contain detailed information on developing a drug library.

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**Note:** When a user is in the Medication List, no other user can be in the Medication List or any library. Each library allows only one user at a time. When you are using a library, no other user can be in the Medication List.

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## Identifying medications in the Medication List

The Medication List requires each medication to have an External identifier (ID). The External ID is especially important if your ICU Medical MedNet system is integrated with another system that sends programming information to the infuser. The External ID is used to assure a match between the medication sent by the sending system and the medication rule set used by the ICU Medical MedNet software.

## Considerations for assigning an External ID

If ICU Medical MedNet is to be integrated with another system (such as a BCMA system) that sends programming information to the infuser (medication, concentration, rate, etc.), each generic name in the Medication List must have a unique External ID. This External ID must be also be used by the sending system (in this case, the BCMA system). This allows, for example, all dopamine products, such as amps, vials, and syringes, to be represented as a single entry in the Medication List referring to the generic name “dopamine.” The corresponding generic level External ID number will vary depending on the BCMA system integrated to ICU Medical MedNet, for example, catalog code or Multum ID for Cerner Millennium, etc. Your Pharmacy Consultant will work with you to create the correct file for your implementation.

If ICU Medical MedNet is not to be integrated with another hospital system that sends programming information to the infuser, all that is required is that each item in the Medication List has a corresponding External ID. In this case, you may want to have various manufacturers or package sizes of the same medication represented in the Medication List. Each generic name can appear multiple times as long as each has its own unique External ID. Numeric sequences or charge master identifiers can be used for this purpose.

## How External ID is used in Drug Libraries

When a drug library is developed, certain rules (listed below) that involve the External ID are enforced.

Within a drug library, for medication entries in a Clinical Care Area (CCA):

1. There can be only one rule set for each combination of External ID and Concentration.

2. There can be only one rule set for each combination of Displayed Name and Concentration.

These rules enable both the ICU Medical MedNet software and the infuser software to positively identify the specific medication rule set in the drug library.

## Import a Medication List

A Medication List file may be imported into ICU Medical MedNet Meds multiple times. Each import file should contain all medications that can be infused even if they have been imported previously.

### Formatting the CSV file

Importing a Medication List involves the creation of a Comma Separated Value (.csv) file containing the medication information. Your pharmacy system may support creating a file in this format or in a similar format that can be manipulated in Excel. The file can have 12 columns as specified below, if importing an entire Medication List. However, if you want to edit only the External ID and Generic Names, you can do it through the Export feature as described in *Export a Medication List*.

- a. The first line of the file is ignored by the Medication List Import function. It should contain the field names in the table below.
- b. Each subsequent line in the file should include one medication entry per line.
- c. Each subsequent line in the file must include data in the External ID and Generic Name fields.

---

**Note:** External ID and Generic Name are the only fields in which data is required.

---

Field Name	Field Type	Number of Characters allowed <sup>1</sup>
External ID	String	20
NDC	String	20
Generic Name	String	100
Brand Name	String	100
Strength	Numeric	20
Strength Units	String	25
Volume	Numeric	20
Volume Units	String	25
Therapeutic Class ID	String	20
Therapeutic Class Description	String	200
Dosage Form ID	String	20
Dosage Form Description	String	200

<sup>1</sup> Comma (,), angle bracket (<>), and double-quote (") characters are not permitted within fields in the import file.

The Medication List can be created as a spreadsheet and saved in .csv format to be imported. An example of a 12-column spreadsheet containing the medication list information is as follows:

External ID	HDC	Generic Name	Brand Name	Strength	Unit	Volume	Volume Units	Therapeutic Class ID	Therapeutic Class Description	Dosage Form	Dos. Form Description
1738	00173-0362-38	RANITIDINE	ZANTAC	50	MG	2	ML	56.28.12	HISTAMINE H2-ANTAGONISTS\1	VL	VIAL
2823	67286-0040-02	RETEPLASE	RETAVASE	10	UNITS	10	ML	28.12.20	THROMBOLYTIC AGENTS\1	VL	VIAL
2790	00944-2967-05	RHO(D) IMMUNE GLOBULIN(WINPHO)	WINPHO	1000	MCG	4.4	ML	80.04.00	SERUMS	VL	VIAL
2665	55390-0123-01	RIFAMPIN	RIFADIN (EQ)	600	MG	1	VIAL	08.16.00	ANTIMYCOBACTERIALS\1	VL	VIAL
412	00052-0450-15	ROCUPRONUM	ZEMURON	50	MG	5	ML	12.20.20	NEUROMUSCULAR BLOCKING AGENTS\1	VL	VIAL
2412	00186-0863-77	ROPIVACAINE 0.5%	NAROPIN			30	ML	72.00.00	LOCAL ANESTHETICS (PARENTERAL)\1	VL	VIAL
32	00270-0556-15	SINCALIDE	KINEVAC	5	MCG	1	VIAL	36.34.00	GALLBLADDER FUNCTION	VL	VIAL
610	00409-6609-02	SODIUM BICARBONATE 4%	SODIUM BICARBONATE 4%			5	ML	40.08.00	ALKALINIZING AGENTS	VL	VIAL
1918	00409-6625-02	SODIUM BICARBONATE 8.4%	SODIUM BICARBONATE 8.4%	50	MEQ	50	ML	40.08.00	ALKALINIZING AGENTS	VL	VIAL
555	00409-1966-14	SODIUM CHLORIDE 0.9% BACT	SODIUM CHLORIDE 0.9% BACT			30	ML	40.12.00	REPLACEMENT PREPARATIONS	VL	VIAL
579	00409-4888-12	SODIUM CHLORIDE PF 0.9%	SODIUM CHLORIDE PF 0.9%			10	ML	40.12.00	REPLACEMENT PREPARATIONS	VL	VIAL
580	00409-4888-50	SODIUM CHLORIDE PF 0.9%	SODIUM CHLORIDE PF 0.9%			50	ML	40.12.00	REPLACEMENT PREPARATIONS	VL	VIAL
612	00409-6629-02	SUCCINYLCHOLINE	SUCCINYLCHOLINE	200	MG	10	ML	12.20.20	NEUROMUSCULAR BLOCKING AGENTS\1	VL	VIAL
1662	00703-9514-03	SULFAMETHYRIMETH	BACTRIM (EQ)			10	ML	08.12.20	SULFONAMIDES (SYSTEMIC)\1	VL	VIAL
2329	00029-6571-26	TICARCILLIN/CLAVULANATE	TIMENTIN	3.1	GM	1	VIAL	08.12.16	PENICILLINS	VL	VIAL
10	63323-0303-55	TOBRAMYCIN	TOBRAMYCIN	1.2	GM	1	VIAL	08.12.02	AMNOGLYCOSIDES	VL	VIAL
1461	63323-0306-55	TOBRAMYCIN	TOBRAMYCIN	80	MG	2	ML	08.12.02	AMNOGLYCOSIDES	VL	VIAL

## Considerations for the Medication List Import File in CSV format

Save the file to .csv format. Extracts from information systems are commonly Excel files, tab-separated files, or pipe-separated files. Each of these can be saved as a CSV file using Excel.

Remove any rows or columns in the CSV file that do not contain required data. Ensure there are 12 columns.

Evaluate the information provided to determine how the fields provided can map to the import file specifications.

- Is there an identifier for each drug that can be used for External ID?
- Does each drug have a Generic Name that contains only the generic name (without strength, volume, or dosage form)?
- Are Therapeutic Class ID and Description provided?  
Therapeutic Class MUST have an ID. The Description is optional. (If only a Description is supplied, use the same information for ID and Description. Copy the Description column to the ID column.)
- Is there data for Dosage Form ID and Description?  
Dosage Form MUST have an ID. The Description is optional. (If only a Description is supplied, use the same information for ID and Description. Copy the Description column to the ID column.)

Remove medications that cannot be infused on a pump from the list.

Format the columns in the file to match the import file specifications.

- Ensure that all columns are present and are named correctly (even if there is no data contained in them).
- Ensure that columns are in the proper order.
- Remove special characters (commas, left and right angle brackets, and double quote characters).

In Excel, from the Edit menu, you may use the Find/Replace option.

- Find comma character, replace with blank.
- Find left angle bracket character, replace with left parenthesis
- Find right angle bracket character, replace with right parenthesis
- Find double quote character, replace with single quote

Final check:

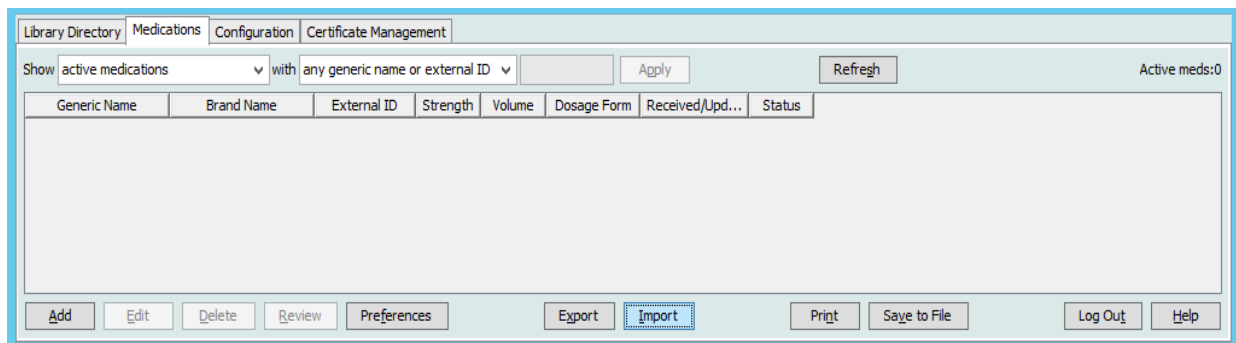
- Sort file by External ID.
- A particular External ID should only appear in one row in the file.
- Ensure that each medication has data in both the External ID and Generic Name columns.
- A Generic Name can appear multiple times in the file with different External IDs.

## Importing the Medication List

**Important:** Importing the Medication List replaces any medications already in the list. Complete instructions are provided in the next segment, [Working with the Medication List](#) section on page 24.

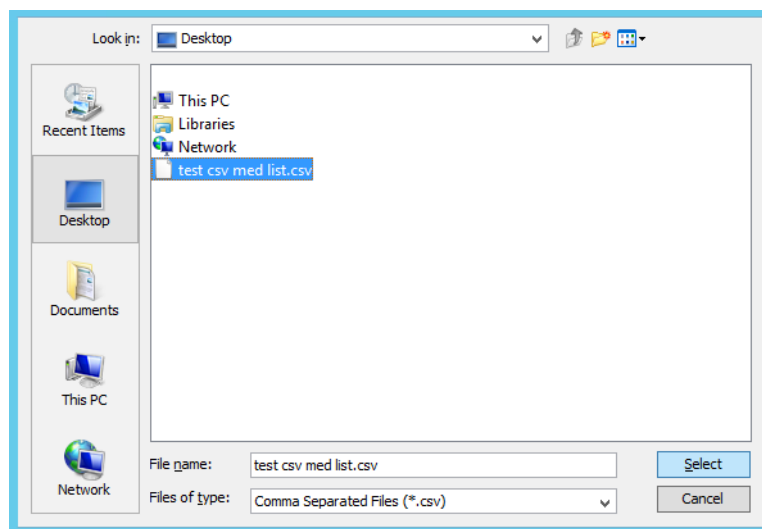
Once the file has been formatted as described above:

- From the Medication List view, select **Import**.

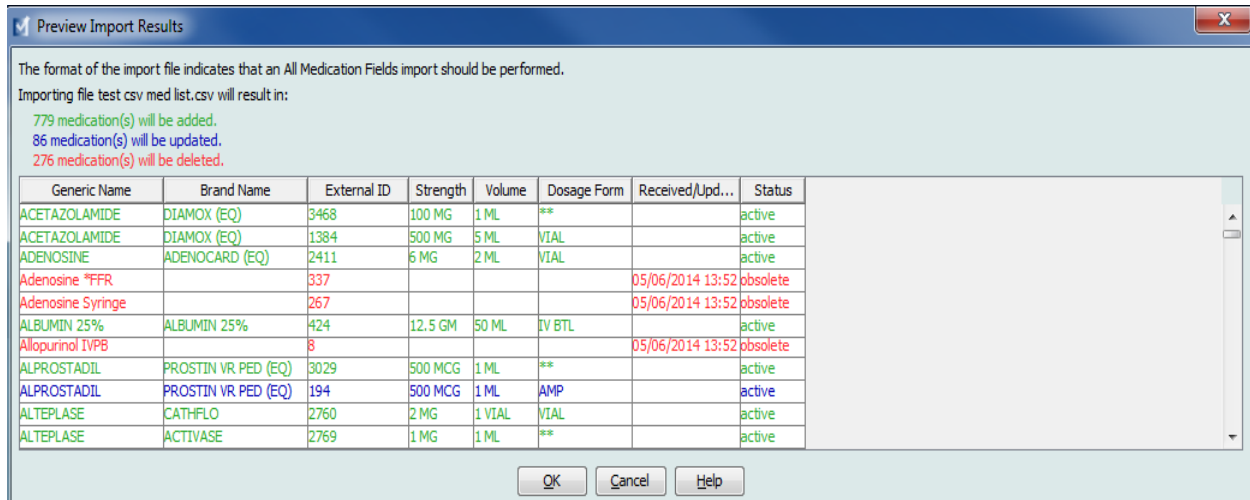


The File to Import screen displays.

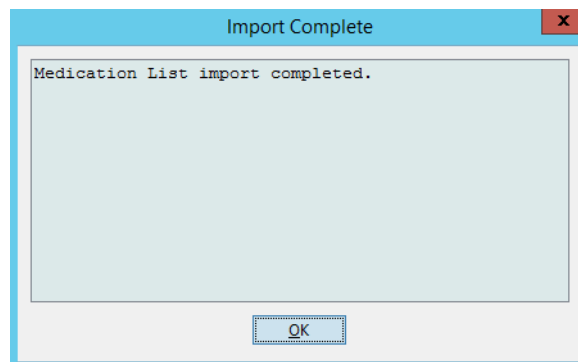
- Navigate to the location of the Medication List to import.



3. Click **Select**. A pop-up window displays a preview of changes to the Medication List. Medications that are being added are displayed in green. If the Medication List currently contains medications, you will see medications that are being deleted displayed in red and medications that are being updated displayed in blue.



4. If satisfied with the preview, click **OK**.
5. To prevent the import, click **Cancel**.
6. If you selected **OK**, a message confirming the import displays.



7. Click **OK**.

**Note:** It is not possible to undo the import of the medication list once it has been completed.

## Working with the Medication List

Importing a Medication List file completely replaces the existing list. Any medication entries in a Worksheet that are associated with medications that are no longer in the medication list must be deleted or reassigned to a new medication before the Worksheet can be finalized.

The following table summarizes the behavior when a new medication list is imported when there are already medications present in the list:

Medication present in the Medication List	Medication present in Import File	Action
Y	N	Removed
Y	Y	Updated
N	Y	Added

For LifeCare PCA Worksheets, the user will be prompted to delete any protocols associated with medications that have been deleted when the worksheet is opened.



# Medication List View

The Medication List view displays:

- Generic Name
- Brand Name
- External ID
- Strength
- Volume
- Dosage Form
- Received/Updated
- Status

You can filter the medications displayed by:

- active medications
- active and pending medications
- pending medications

with

- any generic name or External ID
- generic names beginning with (any character)
- External IDs beginning with (any character)

The screenshot shows the Medication List View interface. At the top, there are tabs for Library Directory, Medications (selected), Configuration, and Certificate Management. Below the tabs, there are search filters: "Show active medications" and "with any generic name or external ID". There are also "Apply" and "Refresh" buttons. The main area contains a table of medications. The table has the following columns: Generic Name, Brand Name, External ID, Strength, Volume, Dosage Form, Received/Upd..., and Status. The table lists various medications such as ACETAZOLAMIDE, ACETYL CYSTEINE, ACYCLOVIR, and ALBUMIN. At the bottom of the interface, there are buttons for Add, Edit, Delete, Review, Preferences, Export, Import, Print, Save to File, Log Out, and Help.

Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form	Received/Upd...	Status
ACETAZOLAMIDE	DIAMOXY (EQ)	3468	100 MG	1 ML	**	05/09/2016 15:44	active
ACETAZOLAMIDE	DIAMOXY (EQ)	1384	500 MG	5 ML	VIAL	05/09/2016 15:44	active
ACETYL CYSTEINE	MUCOMYST (EQ)	2708	200 MG	1 ML	**	05/09/2016 15:44	active
ACETYL CYSTEINE 36 ...	ACETYL CYSTEINE 36 ...	2745	36 GM	180 ML	VIAL	05/09/2016 15:44	active
ACYCLOVIR	ZOVIRAX (EQ)	1701	500 MG	10 ML	VIAL	05/09/2016 15:44	active
ACYCLOVIR	ZOVIRAX (EQ)	705	50 MG	1 ML	**	05/09/2016 15:44	active
ACYCLOVIR-DSW	ACYCLOVIR-DSW	3760	7 MG	1 ML	INFSYR	05/09/2016 15:44	active
ADENOSINE	ADENOSCAN	3284	3 MG	1 ML	**	05/09/2016 15:44	active
ADENOSINE	ADENOCARD (EQ)	2411	6 MG	2 ML	VIAL	05/09/2016 15:44	active
ADENOSINE	ADENOCARD	1562	90 MG	30 ML	VIAL	05/09/2016 15:44	active
ALBUMIN 25%	ALBUMIN 25%	424	12.5 GM	50 ML	IV BTL	05/09/2016 15:44	active
ALBUMIN 5%	ALBUMIN 5%	421	12.5 GM	250 ML	IV BTL	05/09/2016 15:44	active
ALBUMIN 5%	ALBUMIN 5%	422	25 GM	500 ML	IV BTL	05/09/2016 15:44	active
ALCOHOL ETHYL	ABSOLUTE ALCOHOL	1060		1 ML	AMP	05/09/2016 15:44	active
ALDESLEUKIN	PROLEUKIN	2144	1.1 MG	1 ML	**	05/09/2016 15:44	active
ALEMTUZUMAB	CAMPATH	3534	30 MG	1 ML	**	05/09/2016 15:44	active
ALPROSTADIL	PROSTIN VR PED (EQ)	3029	500 MCG	1 ML	**	05/09/2016 15:44	active
ALPROSTADIL	PROSTIN VR PED (EQ)	194	500 MCG	1 ML	AMP	05/09/2016 15:44	active
ALTEPLASE	ACTIVASE	1259	100 MG	1 VIAL	VIAL	05/09/2016 15:44	active
ALTEPLASE	CATHFLO	3793	1 MG	1 ML	**	05/09/2016 15:44	active
ALTEPLASE	CATHFLO	2760	2 MG	1 VIAL	VIAL	05/09/2016 15:44	active
ALTEPLASE	ACTIVASE	2768	50 MG	1 VIAL	VIAL	05/09/2016 15:44	active
ALTEPLASE	ACTIVASE	2769	1 MG	1 ML	**	05/09/2016 15:44	active
AMIKACIN	AMIKACIN	211	500 MG	2 ML	VIAL	05/09/2016 15:44	active
AMIKACIN	AMIKACIN	1439	250 MG	1 ML	**	05/09/2016 15:44	active
AMINO ACID 2%-DEX...	AMINO ACID 2%-DEX...	3422		250 ML	IV BAG	05/09/2016 15:44	active
AMINO ACIDS 10%	TROPHAMINE	976		500 ML	BTL	05/09/2016 15:44	active
AMINO ACIDS 15%	AMINO ACIDS 15%	626		2000 ML	IV BAG	05/09/2016 15:44	active
AMINO ACIDS 8%	HEPATAMINE 8%	977		500 ML	BTL	05/09/2016 15:44	active
AMINOCAPROIC ACID	AMICAR (EQ)	1062	5 GM	20 ML	VIAL	05/09/2016 15:44	active
AMINOCAPROIC ACID	AMICAR (EQ)	1669	0.25 GM	1 ML	**	05/09/2016 15:44	active

# Add a Medication

1. Click the **Medications** tab.

Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form	Received/Upd...	Status
ACETAZOLAMIDE	DIAMOX (EQ)	3468	100 MG	1 ML	**	05/09/2016 15:44	active
ACETAZOLAMIDE	DIAMOX (EQ)	1384	500 MG	5 ML	VIAL	05/09/2016 15:44	active
ACETYLCYSTEINE	MUCOMYST (EQ)	2708	200 MG	1 ML	**	05/09/2016 15:44	active
ACETYLCYSTEINE 36 ...	ACETYLCYSTEINE 36 ...	2745	36 GM	180 ML	VIAL	05/09/2016 15:44	active
ACYCLOVIR	ZOVIRAX (EQ)	1701	500 MG	10 ML	VIAL	05/09/2016 15:44	active
AMINO ACIDS 15%	AMINO ACIDS 15%	626		2000 ML	IV BAG	05/09/2016 15:44	active
AMINO ACIDS 8%	HEPATAMINE 8%	977		500 ML	BTL	05/09/2016 15:44	active
AMINOCAPROIC ACID	AMICAR (EQ)	1062	5 GM	20 ML	VIAL	05/09/2016 15:44	active
AMINOCAPROIC ACID	AMICAR (EQ)	1669	0.25 GM	1 ML	**	05/09/2016 15:44	active

2. Click **Add**.

**Add Medication**

Generic Name:

Brand Name:

External ID:  NDC:

Amount:  Unit:

Strength:

Volume:

Therapeutic Class:

Code:

Description:

Code	Description
28:04.92	GENERAL ANESTHETICS MISCELLANEOUS\1
64:00.00	HEAVY METAL ANTAGONISTS
12:16.00	SYMPATHOLYTIC ADRENERGIC BLOCKING AGENTS
20:12.20	THROMBOLYTIC AGENTS\1
80:04.00	SERUMS

Dosage Form:

Code:

Description:

Code	Description
**	**
IV BAG	IV BAG
VIAL	VIAL
AMP	AMP
INFSYR	INFSYR

Status:

Source:  Created On:

Last Edited On:  Last Edited By:

3. Enter the medication name into the **Generic Name** field. This is a mandatory field.
4. Enter the Brand Name (optional field).
5. Enter the **External ID**. This is a mandatory field.

---

6. Enter the following optional information, if needed:

- NDC (National Drug Code)
- Strength - Amount and Unit
- Volume - Amount and Unit
- Therapeutic Class Code and Description (click on a row in the table to select)
- Dosage Form Code and Description (click on a row in the table to select)

---

**Note:** The contents of the Therapeutic Class and Dosage Form tables are determined by the information in the Medication List import file.

Status, Source, Created On, Last Edited On, and Last Edited By, will be filled automatically after the medication has been added.

---



**CAUTION:** Generic names cannot contain the special characters greater than (>), less than (<), ampersand (&), double quotes (“”), and single quotes (‘).

7. Click **Save**.

# Edit a Medication

1. From the Medication List view, highlight the medication you want to edit.

Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form	Received/Upd...	Status
PROCAINAMIDE	PROCAINAMIDE	1873	0.5 GM	1 ML	**	05/09/2016 15:44	active
PROCALAMINE	PROCALAMINE	1920		1000 ML	IV BTL	05/09/2016 15:44	active
PROCHLORPERAZINE	COMPAZINE (EQ)	2514	5 MG	1 ML	**	05/09/2016 15:44	active
PROMETHAZINE	PHENRGAN (EQ)	3224	25 MG	1 ML	**	05/09/2016 15:44	active
PROMETHAZINE	PHENERGAN (EQ)	1143	25 MG	1 ML	AMP	05/09/2016 15:44	active
PROPOFOL	DIPRIVAN	2185	1000 MG	100 ML	VIAL	05/09/2016 15:44	active
PROPOFOL	DIPRIVAN	1783	500 MG	50 ML	VIAL	05/09/2016 15:44	active
PROPOFOL	DIPRIVAN	983	200 MG	20 ML	VIAL	05/09/2016 15:44	active
PROPOFOL (CATH/EP ...	DIPRIVAN (CATH/EP L...	3888	200 MG	20 ML	VIAL	05/09/2016 15:44	active
PROPOFOL (CATH/EP ...	DIPRIVAN (CATH/EP L...	3889	500 MG	50 ML	VIAL	05/09/2016 15:44	active
PROPRANOLOL	INDERAL (EQ)	388	1 MG	1 ML	VIAL	05/09/2016 15:44	active
PROTAMINE	PROTAMINE	3076	50 MG	5 ML	VIAL	05/09/2016 15:44	active
PROTAMINE (CV OR ...	PROTAMINE (CV OR ...	5	250 MG	25 ML	VIAL	05/09/2016 15:44	active
PROTAMINE SULFATE	PROTAMINE SULFATE	3931	10 MG	1 ML	**	05/09/2016 15:44	active
PYRIDOSTIGMINE	PYRIDOSTIGMINE	2371	10 MG	2 ML	VIAL	05/09/2016 15:44	active
PYRIDOXINE	VITAMIN B-6	1018	100 MG	1 ML	VIAL	05/09/2016 15:44	active
ROCURONIUM	ZEMJURON	412	50 MG	5 ML	VIAL	05/09/2016 15:44	active
ROPIVACAINE 0.5%	NAROPIN	2412		30 ML	VIAL	05/09/2016 15:44	active
SOD CHLORIDE 0.9%...	SOD CHLORIDE 0.9%...	2463		1000 ML	IV BAG	05/09/2016 15:44	active

2. Click **Edit**.
3. Make the changes needed.

**Edit Medication**
✕

---

Generic Name:

Brand Name:

External ID:  NDC:

Amount:  Unit:

Volume:

Therapeutic Class:

Code:

Description:

Code	Description
28:04.92	GENERAL ANESTHETICS MISCELLANEOUS\1
64:00.00	HEAVY METAL ANTAGONISTS
12:16.00	SYMPATHOLYTIC ADRENERGIC BLOCKING AGENTS
20:12.20	THROMBOLYTIC AGENTS\1
80:04.00	SERUMS

Dosage Form:

Code:

Description:

Code	Description
VIAL	VIAL
AMP	AMP
INFSYR	INFSYR
BTL	BTL
ADV	ADV

Status:

Source:  Created On:

Last Edited On:  Last Edited By:

4. Click **Save**.

# Delete a Medication

## To Delete a Medication that is not used in a Drug Library:

1. From the Medication List view, highlight the medication to be deleted.

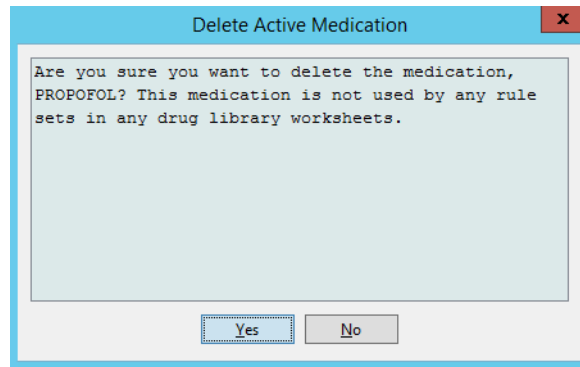
Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form	Received/Upd...	Status
PROCAINAMIDE	PROCAINAMIDE	1873	0.5 GM	1 ML	**	05/09/2016 15:44	active
PROCALAMINE	PROCALAMINE	1920		1000 ML	IV BTL	05/09/2016 15:44	active
PROCHLORPERAZINE	COMPAZINE (EQ)	2514	5 MG	1 ML	**	05/09/2016 15:44	active
PROMETHAZINE	PHENRGAN (EQ)	3224	25 MG	1 ML	**	05/09/2016 15:44	active
PROMETHAZINE	PHENRGAN (EQ)	1143	25 MG	1 ML	AMP	05/09/2016 15:44	active
PROPOFOL	DIPRIVAN	2185	1000 MG	100 ML	VIAL	05/09/2016 15:44	active
PROPOFOL	DIPRIVAN	1783	500 MG	50 ML	VIAL	05/09/2016 15:44	active
PROPOFOL	DIPRIVAN	983	200 MG	20 ML	VIAL	05/09/2016 15:44	active
PROPOFOL (CATH/EP ...)	DIPRIVAN (CATH/EP L...	3888	200 MG	20 ML	VIAL	05/09/2016 15:44	active
PROPOFOL (CATH/EP ...)	DIPRIVAN (CATH/EP L...	3889	500 MG	50 ML	VIAL	05/09/2016 15:44	active
PROPRANOLOL	INDERAL (EQ)	388	1 MG	1 ML	VIAL	05/09/2016 15:44	active
PROTAMINE	PROTAMINE	3076	50 MG	5 ML	VIAL	05/09/2016 15:44	active
PROTAMINE (CV OR ...)	PROTAMINE (CV OR ...)	5	250 MG	25 ML	VIAL	05/09/2016 15:44	active
PROTAMINE SULFATE	PROTAMINE SULFATE	3931	10 MG	1 ML	**	05/09/2016 15:44	active
PYRIDOSTIGMINE	PYRIDOSTIGMINE	2371	10 MG	2 ML	VIAL	05/09/2016 15:44	active
PYRIDOXINE	VITAMIN B-6	1018	100 MG	1 ML	VIAL	05/09/2016 15:44	active
ROCURONIUM	ZEMURON	412	50 MG	5 ML	VIAL	05/09/2016 15:44	active
ROPIVACAINE 0.5%	NAROPIN	2412		30 ML	VIAL	05/09/2016 15:44	active
SOD CHLORIDE 0.9%...	SOD CHLORIDE 0.9%...	2463		1000 ML	IV BAG	05/09/2016 15:44	active

2. Click **Delete**.

The Delete Medication screen displays.

3. Click **Delete**.

The confirmation screen indicates the medication is not used in any drug library.

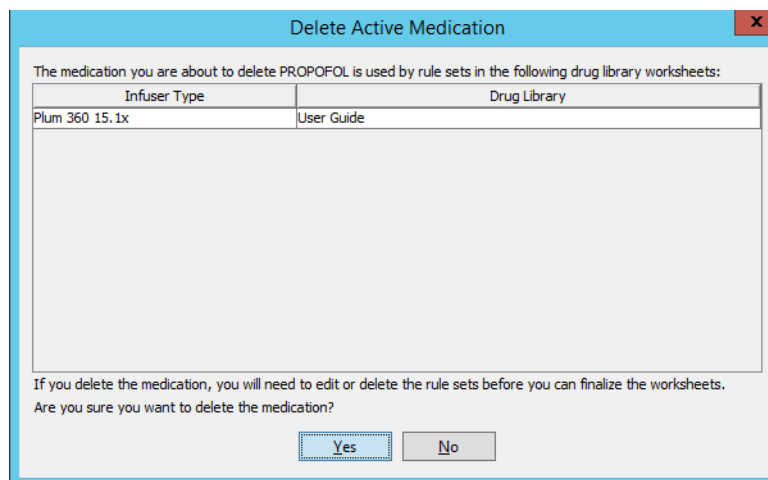


4. If you still wish to delete the medication, click **Yes**.

### To Delete a Medication that is used in a Drug Library:

1. From the Medication List view, highlight the medication to be deleted. The Delete Medication pop-up displays.
2. Click **Delete**.

The pop-up indicates the Drug Libraries that contain the medication.

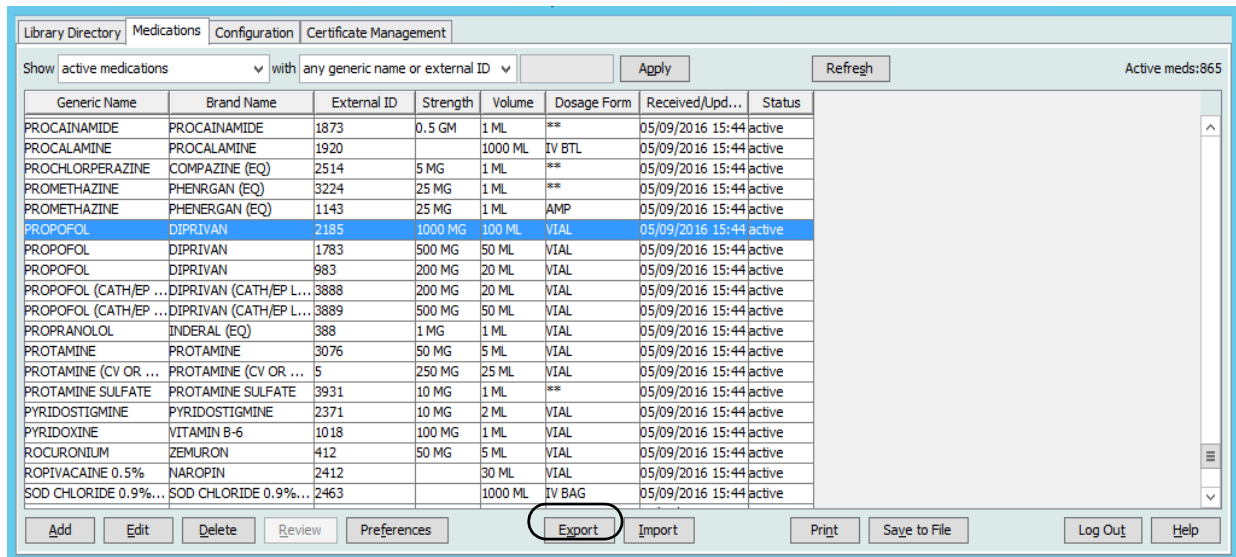


3. After reading the message, if you still wish to delete the medication, click **Yes**.

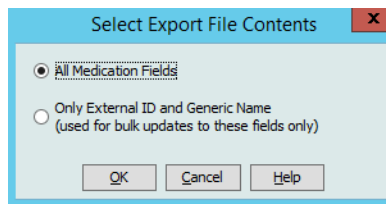
# Export a Medication List

By selecting Export, you can export a file to a location of your choice.

1. From the Medication List view, select **Export**.



The Select Export File Content screen displays.

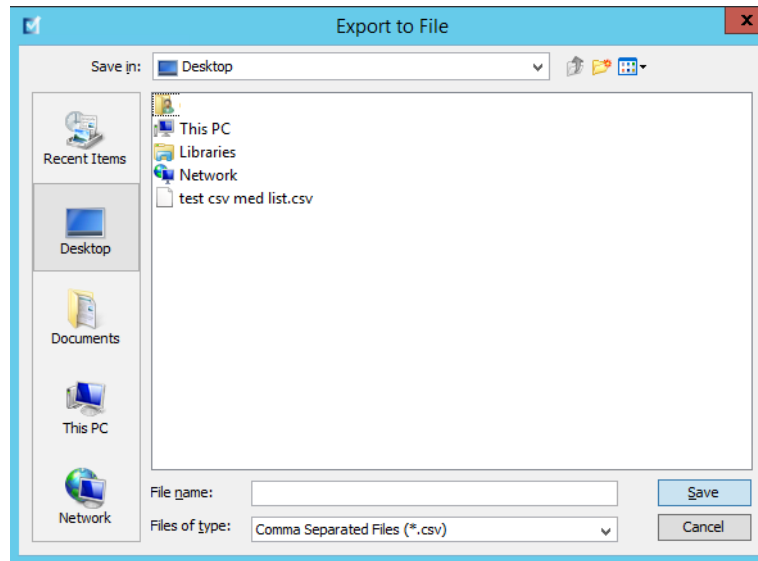


2. Select **All Medication Fields** or **Only External ID and Generic Names**.

**Note:** Selecting to export only the external ID and Generic Names allows you to edit those two fields and then re-import them into the Medication List.

3. Click **OK**. The Export to File screen displays.

4. Select a location for the export of the Medication List.



5. Enter a file name.

---

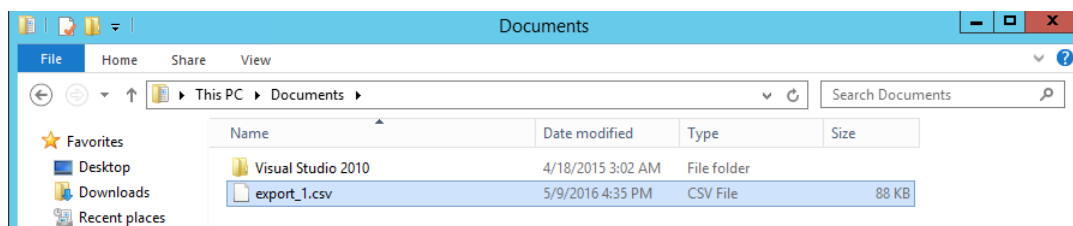
**Note:** The medication list can only be exported in .csv (comma separated value) and XML formats. If you selected to export only the External ID and Generic Name you must export in .csv format.

---

6. Click **Save**.

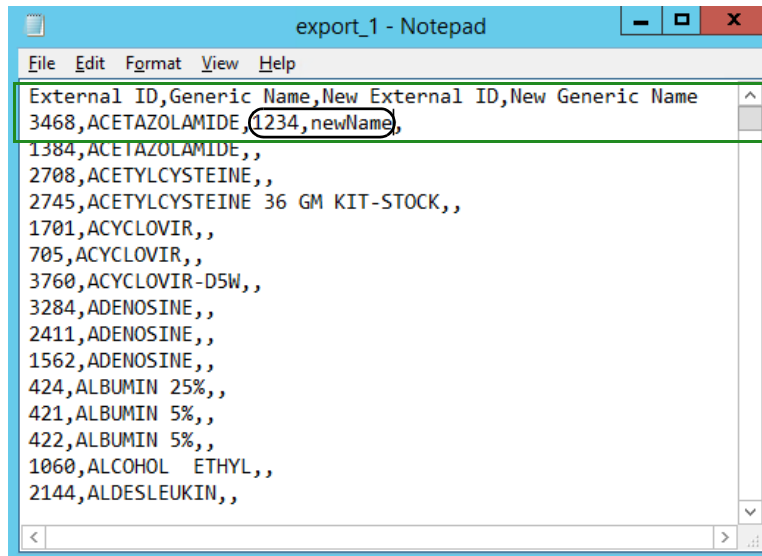
## Editing an Exported External ID and Generic Name File

1. Select the .csv file you have exported and right-click to access Notepad or similar program.





2. Right-click on the name of the file and using Notepad or similar program, edit by adding a new External ID, and new Generic Name between commas.



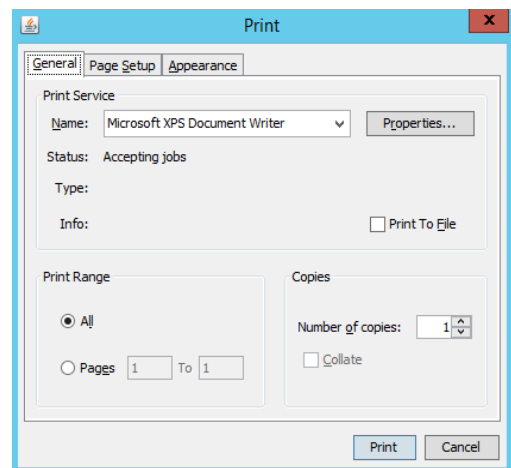
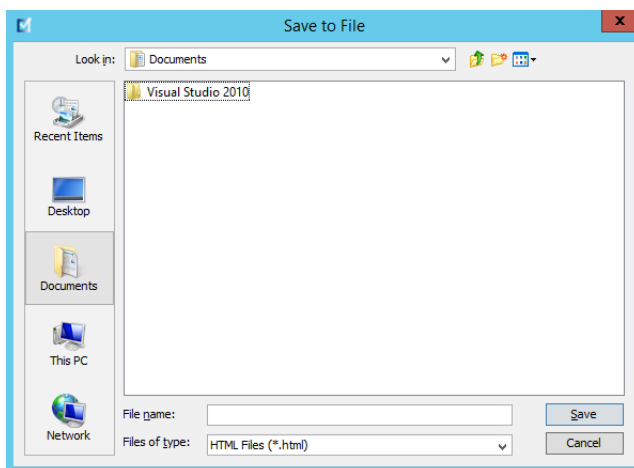
3. From the File menu, select **Save**.  
You can now import this edited file into the Medication List.

# Medication List Report

1. You can select to either:
  - a. Save the report in .html format to a selected location by clicking **Save to File**,
  - or
  - b. Print a report of the data currently being displayed in the Medication List view by clicking the **Print** button.

Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form	Received/Upd...	Status
PROCAINAMIDE	PROCAINAMIDE	1873	0.5 GM	1 ML	**	05/09/2016 15:44	active
PROCALAMINE	PROCALAMINE	1920		1000 ML	IV BTL	05/09/2016 15:44	active
PROCHLORPERAZINE	COMPAZINE (EQ)	2514	5 MG	1 ML	**	05/09/2016 15:44	active
PROMETHAZINE	PHENRGAN (EQ)	3224	25 MG	1 ML	**	05/09/2016 15:44	active
PROMETHAZINE	PHENRGAN (EQ)	1143	25 MG	1 ML	AMP	05/09/2016 15:44	active
PROPOFOL	DIPRIVAN	2185	1000 MG	100 ML	VIAL	05/09/2016 15:44	active
PROPOFOL	DIPRIVAN	1783	500 MG	50 ML	VIAL	05/09/2016 15:44	active
PROPOFOL	DIPRIVAN	983	200 MG	20 ML	VIAL	05/09/2016 15:44	active
PROPOFOL (CATH/EP ...	DIPRIVAN (CATH/EP L...	3888	200 MG	20 ML	VIAL	05/09/2016 15:44	active
PROPOFOL (CATH/EP ...	DIPRIVAN (CATH/EP L...	3889	500 MG	50 ML	VIAL	05/09/2016 15:44	active
PROPRANOLOL	INDERAL (EQ)	388	1 MG	1 ML	VIAL	05/09/2016 15:44	active
PROTAMINE	PROTAMINE	3076	50 MG	5 ML	VIAL	05/09/2016 15:44	active
PROTAMINE (CV OR ...	PROTAMINE (CV OR ...	5	250 MG	25 ML	VIAL	05/09/2016 15:44	active
PROTAMINE SULFATE	PROTAMINE SULFATE	3931	10 MG	1 ML	**	05/09/2016 15:44	active
PYRIDOSTIGMINE	PYRIDOSTIGMINE	2371	10 MG	2 ML	VIAL	05/09/2016 15:44	active
PYRIDOXINE	VITAMIN B-6	1018	100 MG	1 ML	VIAL	05/09/2016 15:44	active
ROCURONIUM	ZEMURON	412	50 MG	5 ML	VIAL	05/09/2016 15:44	active
ROPIVACAINE 0.5%	NAROPIN	2412		30 ML	VIAL	05/09/2016 15:44	active
SOD CHLORIDE 0.9%...	SOD CHLORIDE 0.9%...	2463		1000 ML	IV BAG	05/09/2016 15:44	active

2. The appropriate window displays:



Make your selections.

3. Click **Save** or **Print**.

# Chapter 5: The Library Directory

## Overview

A drug library is a collection of medication names, rule sets, Clinical Care Areas (CCAs), and infuser settings. ICU Medical MedNet Meds software stores drug libraries in three ways:

- Worksheets
- Active Libraries
- Archived Libraries

A *Worksheet* is a library that has not yet been approved (finalized) for transfer to infusers. You can store multiple Worksheets in the database; however, you may only edit one Worksheet at a time.

An *Active library* is a Worksheet that has been finalized. (To learn more about finalization, see [Finalizing Worksheets](#) section on page 65.) Once a Worksheet has been finalized, no more changes can be made to it. Only an Active library can be transferred to infusers. Only one Active library per infuser type can exist at a time in the ICU Medical MedNet Meds software database.

An *Archived library* is a previously Active library that has been deactivated for transfer to infusers. Archived libraries can be copied but cannot be edited or downloaded to infusers.

Unless otherwise specified (for example, “Active library”), the term *library* used alone refers to Worksheets and to both Active and Archived libraries.

*Finalizing* is the process of converting a Worksheet into an Active library.

When adding a Worksheet, you need to set up CCA names, infuser settings, and medication entries in order to create a complete library.

You can create Worksheets and libraries in the following ways:

- By creating new, blank Worksheets
- By copying existing libraries, Archived libraries, or Worksheets
- By importing special files that ICU Medical MedNet Meds software is able to convert into a Worksheet

The Library Directory view lists the active library for each infuser type, all Worksheet libraries, and all archived libraries in the database. The following information is displayed in the Library Directory view:

Library Directory	
Field	Result
Drug Library ID	A field automatically assigned by the system when a Worksheet is created
Infuser Type	Licensed infusers
Drug Library <sup>1</sup>	The name you entered when you created the library
Library Status	Categorized as one of the following: <ul style="list-style-type: none"> <li>• Worksheet</li> <li>• Active</li> <li>• Archive</li> </ul>
Date Modified	The date and time the drug library was last modified
Date Finalized <sup>2</sup>	The date and time the drug library was finalized
Infuser Library Version <sup>3</sup>	The finalization date, software version, and Drug Library ID that was assigned to the library when it was created
Library Notes	Additional information about a drug library entered by the user
<sup>1</sup> The library name cannot be edited after the library is created. <sup>2</sup> This field is blank if the drug library is a Worksheet. <sup>3</sup> The finalization date is represented in Greenwich Mean Time (GMT), not local time.	

## Library Directory Conventions

The Library Directory uses the following conventions:

- You may sort all columns in the Library Directory view in either ascending or descending order by clicking on the column heading.
- You may use the vertical and horizontal scroll bar(s) to scroll to an entry.
- When you highlight an entry on the Library Directory view, buttons or features that are not available appear as “grayed” or disabled.

## Step-by-Step Procedures

The following section provides step-by-step procedures that enable you to manage the Library Directory. In this section you will learn how to do the following:

- Navigate to the Library Directory list view
- Create, edit, and add a note to a Worksheet
- Delete Worksheets and archived drug libraries
- View a drug library
- Copy a drug library
- Import a drug library
- Export a drug library

**To navigate to the Library Directory list view, do the following:**

1. Double-click the ICU Medical MedNet Meds software icon on the Windows desktop.
2. Enter your **User ID** and **Password**.

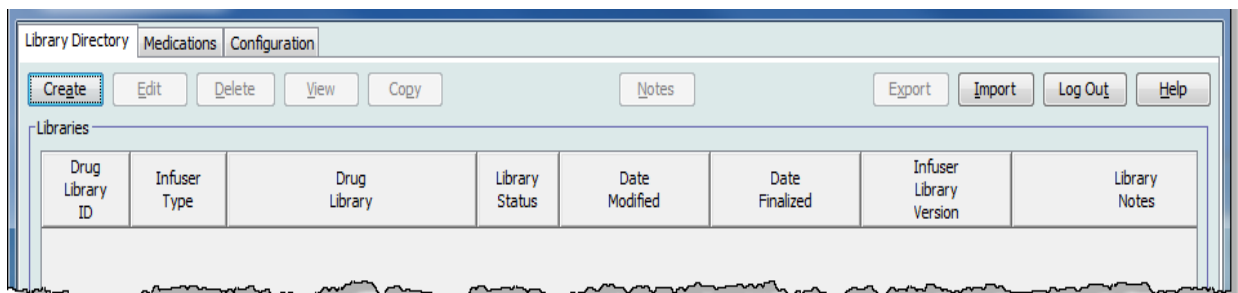
---

**Note:** In order to log in to the application and perform the procedures in this chapter, you must have the appropriate access privileges.

---

3. Click **Log in**.

The Library Directory view appears.



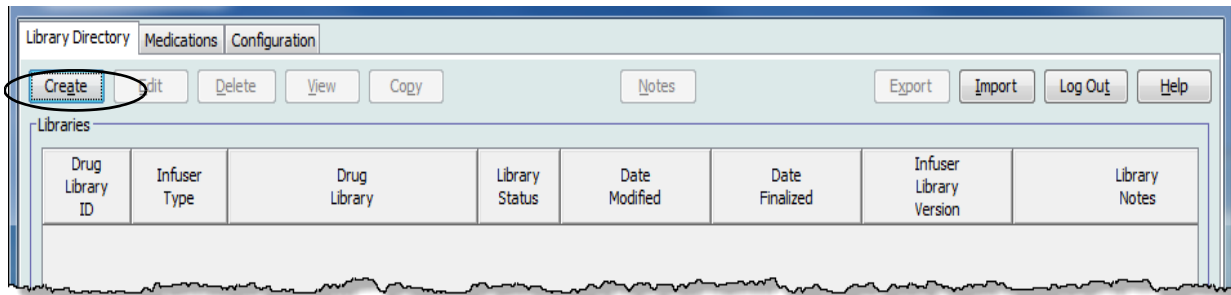
---

**Note:** You will not see any entries in the list until you create a Worksheet or import a library.

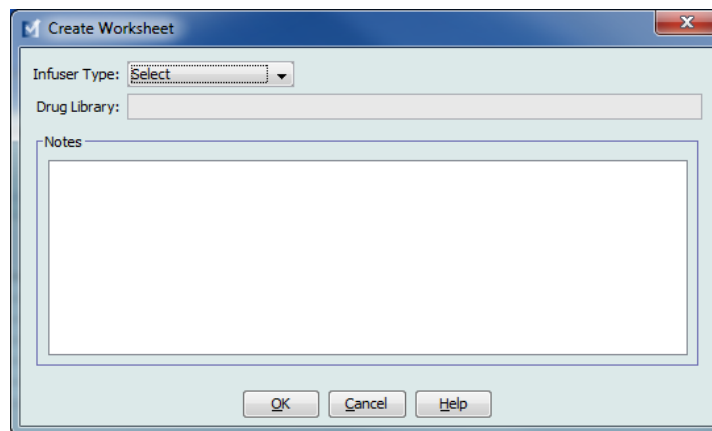
---

## Create a Worksheet

1. On the Library Directory view, click **Create**.



The Create Worksheet screen appears.



2. From the **Infuser Type** drop-down list, select an infuser type.
3. In the **Drug Library** field, type a name for the library.
4. Enter a Note, if desired, for the library.

---

**Note:** Your note may contain information such as "For P & T Review" or other helpful hints to keep you organized as you build the library.

---

5. Click **OK**.

The Create Worksheet screen closes and your entry appears in the Library Directory view.

## Edit a Worksheet

1. On the Library Directory view, highlight a Worksheet.
2. Click **Edit**.
3. Make desired changes.
4. Click **Close**.

Your modification is saved and the Library Directory view displays.

**Note:** Additional information on editing worksheets can be found in the infuser-specific chapters:

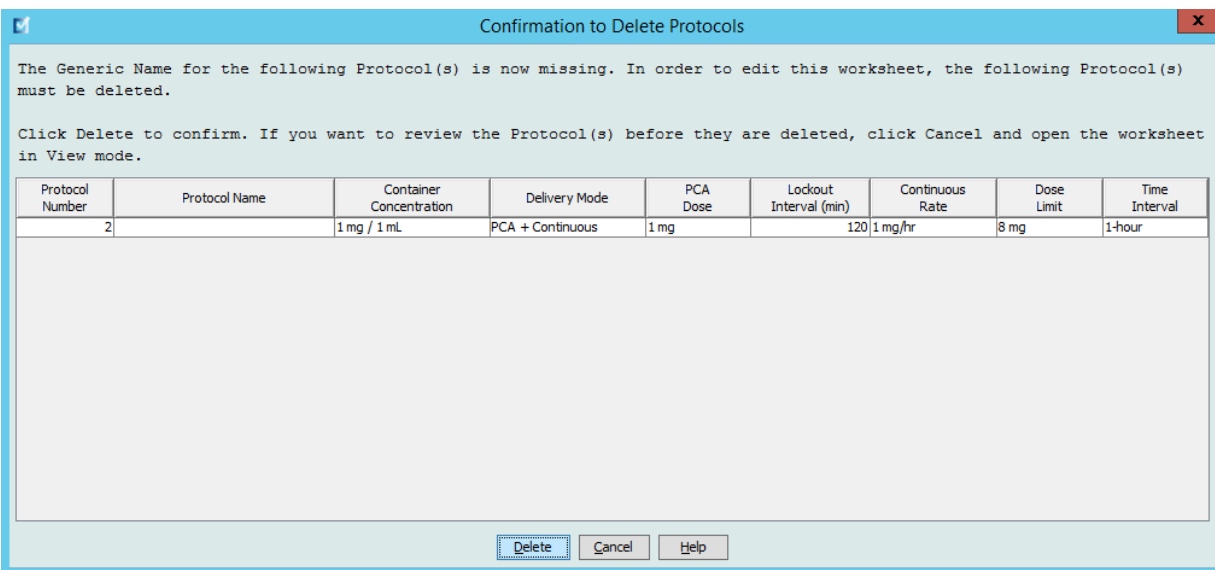
[Chapter 9: Plum A+, and Plum 360 Medication Entries](#), on page 123

[Chapter 10: LifeCare PCA Medication Entries](#), on page 185

[Chapter 12: SapphirePlus Medication Entries](#), on page 217

For LifeCare PCA only:

If you attempt to edit a drug library that contains a protocol which is referring to a medication that has been deleted from the medication list, the following pop-up screen will display.



1. Click **Delete**.

The protocol will be removed and you will be able to edit the Worksheet.

**Note:** In order to open the Worksheet, you must first delete the protocol.

## Delete a Worksheet or Archived Drug Library

You may delete a Worksheet or Archived drug library from the Library Directory. When you delete a library, it is permanently removed from the system.

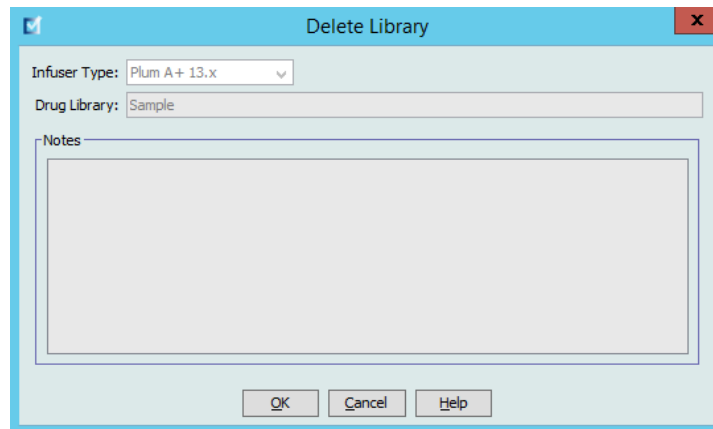
**To delete a Worksheet or Archived drug library, do the following:**

1. On the Library Directory view, highlight a Worksheet or Archived drug library.
2. Click **Delete**.

The Delete Library screen opens.



**CAUTION:** By deleting a library, you remove it from the system permanently. You may want to ensure that your system has recently been backed up before deleting a drug library.



3. Click **OK**.

The Worksheet or library is permanently deleted and the Library Directory view appears.



## View a Drug Library

1. On the Library Directory view, highlight a drug library.
2. Click **View**.

The Drug Library Management view appears.

**Note:** You cannot make changes when viewing a library.

The screenshot displays the 'Drug Library Management' window. At the top, there are tabs for 'Reports', 'CCA Setup', and 'Master Infuser Setup'. Below the tabs are 'Finalize', 'Close', and 'Help' buttons. The main area is divided into two sections: 'Target List' and 'Source List: Master Drug Formulary'.

**Target List:** This section has a 'Select a CCA' dropdown and buttons for 'Add', 'Edit', 'View', and 'Remove'. It also includes an 'Arrange CCA List' button and a 'Medication Entries' label. The table below is currently empty.

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Rule Set	Dosing Unit	Lower Hard Limit	Lower Soft Limit	Upper Soft Limit	Upper Hard Limit
--------------	-------------	----------------	-------------------------------------	----------	-------------	------------------	------------------	------------------	------------------

**Source List: Master Drug Formulary:** This section has a 'Master Drug Formulary' dropdown and buttons for 'Add', 'Edit', 'View', and 'Delete'. It includes a 'Copy to Target CCA' button and a 'Medication Entries: 41' label. The table below contains several entries.

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Rule Set	Dosing Unit	Lower Hard Limit	Lower Soft Limit	Upper Soft Limit	Upper Hard Limit
ACYCLOVIR	1701	ACYCLOVIR	500 mg / 10 mL	Full	mcg/kg/hr	1			
CEFAZOLIN	1433	CEFAZOLIN	__ mg / __ mL	Full	mL/hr	5			
DOBUTAMINE	12	DOBUTAMINE	250 mg / 20 mL	Full	mL/hr	1			
DOXYCYCLINE	1549	DOXYCYCLINE	5 mL	Limited	mL/hr	1	2	3	4
MORPHINE	2738	MORPHINE		Label Only					
MORPHINE PCA	594	MORPHINE PCA	30 mg / 30 mL	Full	mg/hr		1		
VANCOMYCIN	577	VANCOMYCIN		Label Only					

At the bottom of the window, there is a status bar with the following information: Library Name: User Guide Plum A+, Infuser: Plum A+ 13.x, Status: Worksheet, Modified: May 09 2013 04:10PM, Mode: View, User: mednet\_admin.

**Helpful Hint:** If you hover the mouse pointer over any medication entry in the Master Drug Formulary, a “tool tip” displays the medication’s generic name and concentration as well as the CCAs to which it has been assigned (see below). The tool tip will disappear after 5 seconds.

This screenshot shows the 'Source List: Master Drug Formulary' window with a tooltip displayed over the 'VANCOMYCIN' entry. The tooltip text reads: 'VANCOMYCIN assigned to CCA: SICU'. The table below is the same as in the previous screenshot.

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Rule Set	Dosing Unit	Lower Hard Limit	Lower Soft Limit	Upper Soft Limit	Upper Hard Limit
ACYCLOVIR	1701	ACYCLOVIR	500 mg / 10 mL	Full	mcg/kg/hr	1			
CEFAZOLIN	1433	CEFAZOLIN	__ mg / __ mL	Full	mL/hr	5			
DOBUTAMINE	12	DOBUTAMINE	250 mg / 20 mL	Full	mL/hr	1			
MORPHINE	2738	MORPHINE		Label Only					
MORPHINE PCA	594	MORPHINE PCA	30 mg / 30 mL	Full	mg/hr		1		
VANCOMYCIN	577	VANCOMYCIN		Label Only					

The status bar at the bottom shows: Library Name: User Guide Plum A+, Infuser: Plum A+ 13.x, Status: Wor

3. Click **Close** to return to the Library Directory view.

## Copy an Archived Library, Active Library, or Worksheet

In order to facilitate creating or updating a drug library, you may copy Active or Archived drug libraries as well as Worksheets. When you copy a drug library, all medication rule sets, infuser settings, and CCA settings are included. The copied drug library appears as a new entry on the Library Directory view.

1. On the Library Directory view, highlight the desired drug library entry.
2. Click **Copy**.

The Copy Library screen opens.

3. In the **Drug Library** field, type the name of the new drug library as you wish it to appear on the Library Directory view.

---

**Note:** You may enter information into the **Notes** field, if needed.

---

4. Click **OK**.

Your drug library is copied. The new Worksheet appears on the Library Directory view.

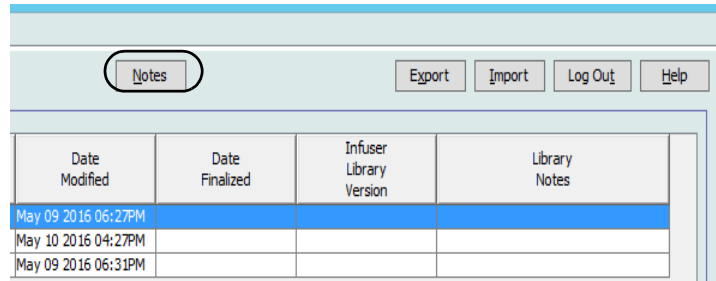
---

**Note:** Copying is allowed only between libraries for the same infuser type. Although SapphirePlus 13.x is not supported, you can create and/or use a SapphirePlus 13.x drug library worksheet to copy or export to the SapphirePlus 14.x infuser. However, the SapphirePlus 13.x library cannot be downloaded to the SapphirePlus 14.x infuser.

---

## Add or Edit Notes to a Worksheet.

1. On the Library Directory view, highlight a Worksheet.
2. Click **Notes**.



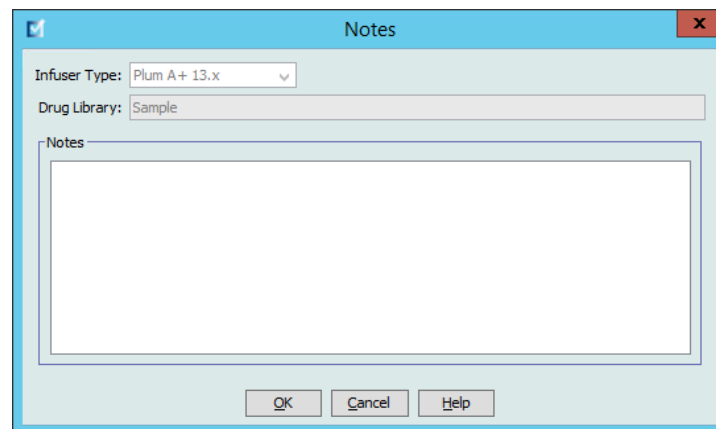
Date Modified	Date Finalized	Infuser Library Version	Library Notes
May 09 2016 06:27PM			
May 10 2016 04:27PM			
May 09 2016 06:31PM			

The Notes screen opens.

---

**Note:** The **Infuser Type** and **Drug Library** fields cannot be edited.

---



3. Type the note or edit text in the **Notes** field.
4. Click **OK**. The note is saved and appears in the **Library Notes** field of the Library Directory.

---

**Note:** The **Notes** field cannot be modified after a drug library is finalized.

---

## Export an Archived Library, Active Library, or Worksheet

---

**Note:** Only users with the appropriate login privileges are able to export files.

---

You can export the rule sets from Worksheets, Archived libraries, and Active libraries as XML (Extensible Markup Language) files.

---

**Note:** If the exported XML file is modified, it cannot be re-imported into ICU Medical MedNet Meds.

---

You can also export a Worksheet, Archived library, or Active library as a Comma Separated (CSV) file. CSV filenames end in “.csv.” The file can be used to view rule sets in Microsoft Excel.

---

**Note:** Comma Separated files cannot be re-imported into ICU Medical MedNet Meds.

---

When exporting a Worksheet, Archived library, or Active library, only medication entries that have been assigned to CCAs will be exported; medication entries that are listed only in the Master Drug Formulary are not exported.

The Master Infuser and CCA Settings are included in exported XML files. When a LifeCare PCA Worksheet is exported in the CSV format, the bar code values will appear to begin with a single quote (‘) character if the file is viewed in Microsoft Excel.

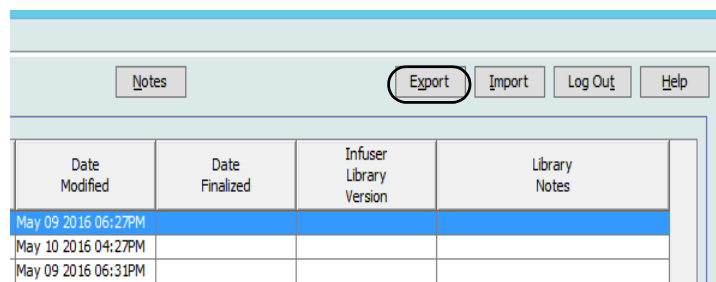
---

**Note:** Protocols are not exported with an XML file for a LifeCare PCA Drug Library. Protocols must be manually re-entered after a PCA Drug Library is imported back into ICU Medical MedNet Meds.

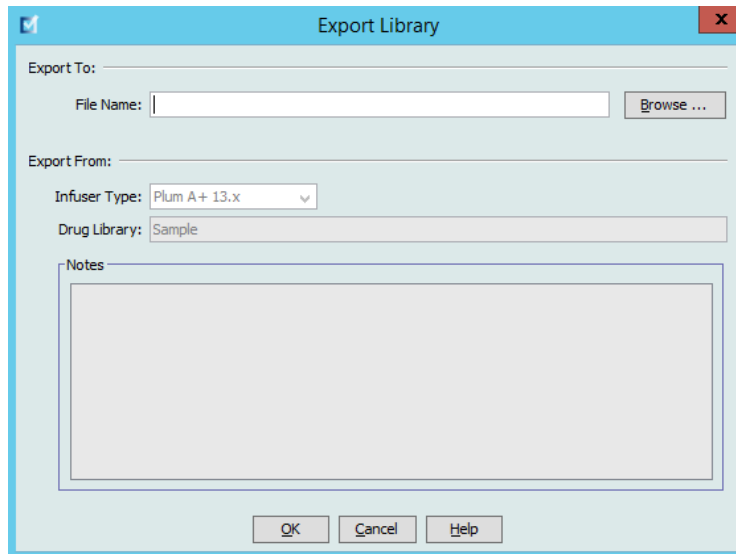
---

You may export a drug library to an external location on your network or hard drive.

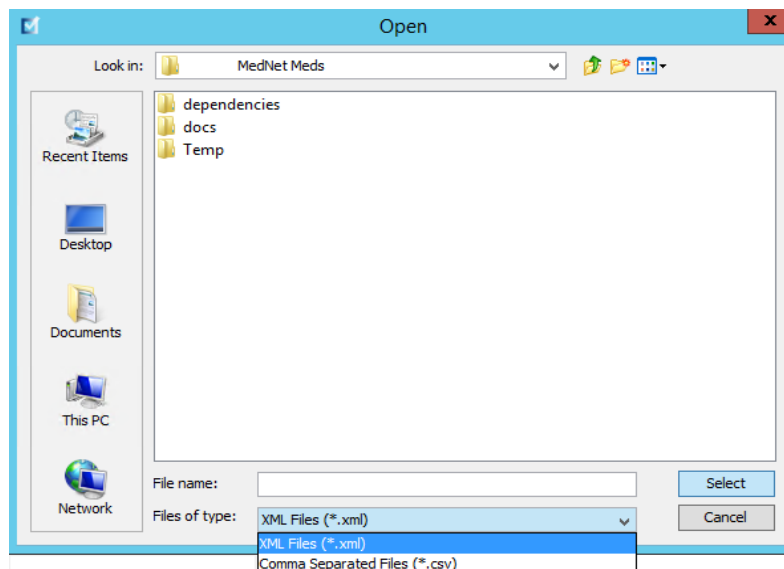
1. On the Library Directory view, highlight the desired drug library.
2. Click **Export**.



The Export Library screen opens.



3. Click **Browse**.



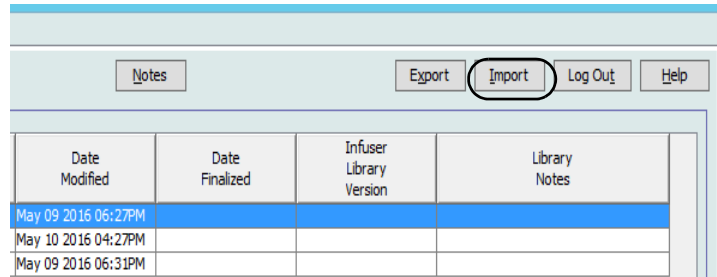
4. In the **File Name** field, type in a path and file name to use for the exported file.
5. Select either **XML Files** or **Comma Separated Files (CSV)** from the drop-down list.
6. Click **OK**.

The Export Library screen closes. The drug library is exported to the desired location.

## Import a Drug Library

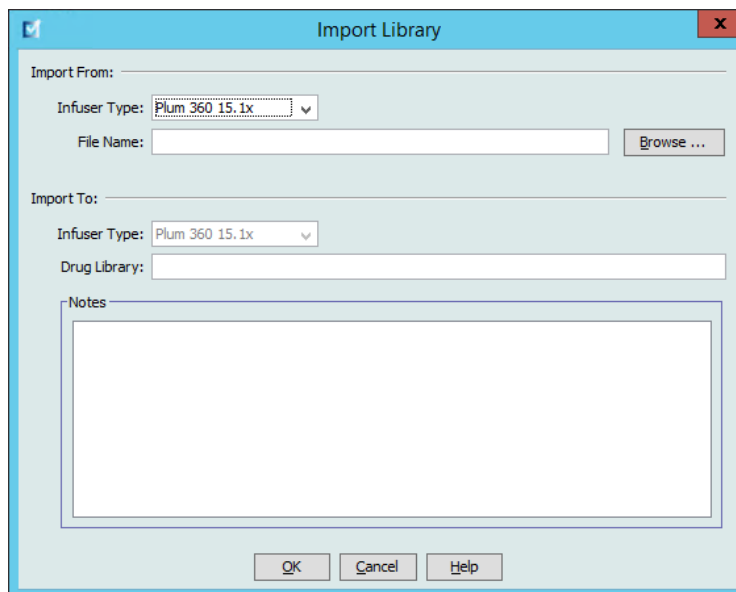
You may import a drug library from an XML file created by ICU Medical MedNet Meds. When you import a drug library, it becomes a Worksheet. The software fully validates the data ranges, precision, and relationships before adding imported data to the database.

1. From the Library Directory view, click **Import**.



Date Modified	Date Finalized	Infuser Library Version	Library Notes
May 09 2016 06:27PM			
May 10 2016 04:27PM			
May 09 2016 06:31PM			

The Import Library screen opens.



2. In the **Import From** screen area, select the **Infuser Type** that corresponds to the library you are importing.
3. In the **File Name:** field, type in the path and file name of the drug library you wish to import.

**Helpful Hint:** You may search for the file name and path by clicking **Browse** and navigating to the desired file.

4. In the **Import To** screen area, select the **Infuser Type** that corresponds to the library you are importing.
5. In the **Drug Library** field, type in a name for the imported library, as you would like it to appear on the Library Directory view.

---

**Note:** You may enter information into the **Notes** field, if needed.

---

6. Click **OK**.

---

The Import Library screen closes and the newly imported Worksheet appears on the Library Directory view.

---

**Note:** A Drug Library that contains one or more Medication Entries referring to a medication which is not in the Medication List will be imported. In order for the library to be finalized, all medication entries will need to be assigned to a medication in the Medication List.

If the file you are attempting to import contains unusable data, the software displays an error message and does not import the file.

---



**WARNING:** If you make changes to an exported XML file, the file cannot be imported.

## Notes:



# Chapter 6: Drug Library Management

## Overview

The Drug Library Management view allows you to create, edit, and delete safety limits for medication entries used by the infusers. The safety limits established are then incorporated directly by the rule sets used in the drug library.

The Drug Library Management view displays when you open a Worksheet or an Active or Archived library. This view consists of two panes that display the target and source medication lists associated with individual CCAs and the Master Drug Formulary. As a CCA is created, medications that have been assigned to it will be displayed in the Target List pane at the top of the view. The complete list of medications available in the Master Drug Formulary is displayed in the Source List pane at the bottom of the view. The Master Drug Formulary is the comprehensive list of medications and rule sets defined for use in a Drug Library.

The drop-down list in each pane displays the CCAs that have been defined for the library. The active functions (buttons) available in the Drug Library Management view will vary depending on the type of library you have opened and whether or not a CCA is selected. Functions that are not available from this view will be grayed out.

The screenshot shows the 'Drug Library Management' window with the following components:

- Navigation:** 'Finalize', 'Close', and 'Help' buttons.
- Target List Pane:**
  - Buttons: 'Select a CCA' (dropdown), 'Add', 'Edit', 'View', 'Remove', 'Arrange CCA List'.
  - Sub-headers: 'Dose Rate Limits', 'Bolus Limits'.
  - Table Headers: Generic Name, External ID, Displayed Name, Concentration (or Container Volume), Rule Set, Clinical Use, Dosing Unit, Lower Hard Limit, Lower Soft Limit, Upper Soft Limit, Upper Hard Limit.
- Source List Pane (Master Drug Formulary):**
  - Buttons: 'Master Drug Formulary' (dropdown), 'Add', 'Edit', 'View', 'Delete', 'Copy to Target CCA'.
  - Sub-headers: 'Dose Rate Limits', 'Bolus Limits'.
  - Table Headers: Generic Name, External ID, Displayed Name, Concentration (or Container Volume), Rule Set, Clinical Use, Dosing Unit, Lower Hard Limit, Lower Soft Limit, Upper Soft Limit, Upper Hard Limit.
  - Table Data:
- Footer:** 'Library Name: User Guide', 'Infuser: Plum 360 15.1x', 'Status: Worksheet', 'Modified: May 11 2016 06:15PM', 'Mode: Edit', 'User: mednet\_admin'.

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Rule Set	Clinical Use	Dosing Unit	Lower Hard Limit	Lower Soft Limit	Upper Soft Limit	Upper Hard Limit
CEFAZOLIN	1433	CEFAZOLIN	__mg / __mL	Full	NOT SPECI...	mL/hr	5			
DOBUTAMINE	12	DOBUTAMINE	250 mg / 20 mL	Full	NOT SPECI...	mL/hr	1			
DOPAMINE	1044	DOPAMINE	200 mg / 5 mL	Full	NOT SPECI...	mL/hr	1			
DOPAMINE 400 M...	1640	DOPAMINE 400 M...	__mL	Limited	NOT SPECI...	mL/kg/min			50	
DOXYCYCLINE	1549	DOXYCYCLINE	__mL	Limited	NOT SPECI...	mL/hr	1			

---

**Note:** The Master Drug Formulary (MDF) contains a list of all medications available for use by the CCAs in the library. The MDF list functions as a “parent” to the medication entries in the Target List.

---

To create and complete a drug library suitable for transfer to an infuser, you will need to:

- Define the desired CCAs.  
See: [Chapter 8: Setting Up CCAs](#), on page 97
- Create the medication entries.  
See: [Chapter 9: Plum A+, and Plum 360 Medication Entries](#), on page 123  
See: [Chapter 10: LifeCare PCA Medication Entries](#), on page 185  
See: [Chapter 12: SapphirePlus Medication Entries](#), on page 217
- Arrange the medication list in the desired order.  
See: [Changing the Display Order of Medication Entries](#), on page 54
- Create protocols for the LifeCare PCA infuser - Optional.  
See: [Chapter 11: Setting Up LifeCare PCA Protocols](#), on page 205
- Define the Master Infuser setting.  
See: [Chapter 13: Master Infuser Setup](#), on page 249

# Drug Library Management Conventions

The Drug Library Management view uses the following conventions:

- The fields in the Target List and Source List panes are identical.
- The list grid includes a moveable split bar located after the fourth column. The remaining columns scroll under the first three.
- The Target List and Source List panes include a read-only field that displays the total number of medications in a selected list.
- All columns are re-sizeable and may be sorted in ascending or descending order by clicking on the column header.
- The view includes a read-only bottom status bar that displays the Library Name, Infuser, Status, Modified [date], Mode, and User.
- Commas (,) double quotes (“”) and angle brackets (<>) are considered invalid characters and cannot be used in a name.

## Managing Drug Libraries

The following procedures enable you to manage drug libraries for each infuser. The data that you see in the target and source panes will be different for each infuser and is consistent with the medication entry for the infuser.

### Target List Procedures

- Viewing Medication Entries in a CCA
- Removing Medication Entries from a CCA
- Changing the Display Order of Medication Entries

### Source List Procedures

- Viewing Medication Entries in the Master Drug Formulary
- Copying Medication Entries from One CCA to Another
- Deleting Medication Entries from the Master Drug Formulary

### General Procedures

- Finalizing Worksheets
- Closing Worksheets



**WARNING:** In the case of an auto-program, if the ICU Medical MedNet™ Software is unable to locate a matching rule set, the order will be sent to the infuser under “No Drug Selected” (infuser- and CCA-dependent) and the order data will be transmitted to the infuser. No Rule Set Limits will be available for this order. If the order is a partial auto-program, the remaining parameters will be manually programmed. See the specific infuser operating manual for additional information.

## Viewing Medication Entries in a CCA

1. From the Library Directory view, highlight a Worksheet.
2. Click **Edit** or **View**.

The Drug Library Management view opens.

3. From the Target List, select the CCA containing the medication entry you want to view.

Drug Library Management | Reports | CCA Setup | Master Infuser Setup

Finalize

Target List: W-1

W-1 | Add | Edit | View | Remove

Dose Rate Limits		Bolus Limits			
Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Rule Set	
No Drug Selected		No Drug Selected		Label Only	
HYDROMORPHONE	349	HYDROMORPHONE		Label Only	
CEFAZOLIN	1433	CEFAZOLIN	__ mg / __ mL	Full	
DOPAMINE 400 M...	1640	DOPAMINE 400 M...	__ mL	Limited	
HEPARIN 25 000 ...	1642	HEPARIN 25 000 ...	25000 Units / 250 mL	Full	
DOPAMINE	1044	DOPAMINE	200 mg / 5 mL	Full	

4. Select the medication entry.
5. From the Target List, click **View**.
6. When you are finished viewing the medication entry, click **Close**.

Target List: View Rule Set

**Medication and Concentration**

Generic Name (External ID) (Strength / Volume) (Dosage Form):  
HEPARIN 25 000 UNITS-D5W (1642) ( / 500 ML) (IV BAG) | Select

Displayed Name: HEPARIN 25 000 UNITS- | Therapeutic Class: ANTICOAGULANTS | Class ID: 20:12,04

Summary: HEPARIN 25 000 UNITS- 25000 Units / 250 mL for Clinical Use " \_\_ " Dosed in units/hr

Rule Sets: Full

Concentration

Medication Amount: 25000 | Medication Unit: Units | Diluent Amount: mL: 250

Piggyback delivery allowed  
 Allow piggyback to interrupt this infusion

Clinical Use (optional)

If the Clinical Use is blank, it will be updated with the value in the Default Clinical Use from the Master Infuser Setup.

Dose Limits

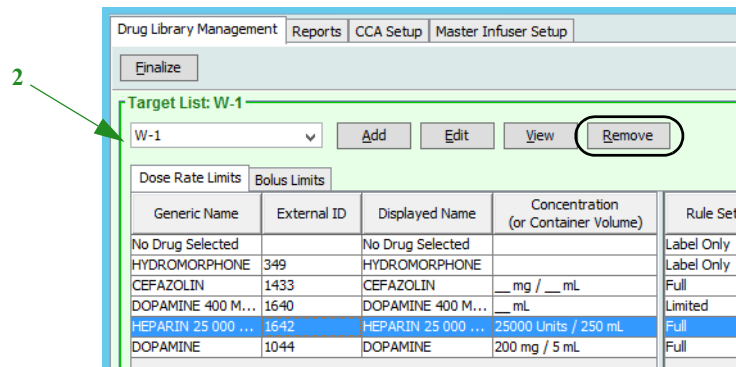
Dosing Unit: units/hr | LHL: 100 | LSL: 500 | USL: 10000 | UHL: 15000

Close | Help

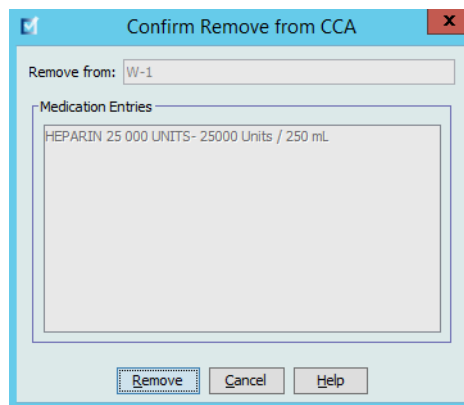
## Removing Medication Entries from a CCA

**Note:** Only users with the appropriate login privileges are able to add and remove medication entries from CCAs.

1. From the Library Directory view, open a Worksheet for editing.
2. From the Target List, select the CCA containing the medication entry you want to remove.



3. Select the medication entry to remove.
4. From the Target List, click **Remove**.
5. At **Confirm Remove** from CCA, click **Remove**.



**Note:** You can delete one medication at a time from the Master Drug Formulary or you can delete several at a time by highlighting them, using the shift key or control key, and deleting them.

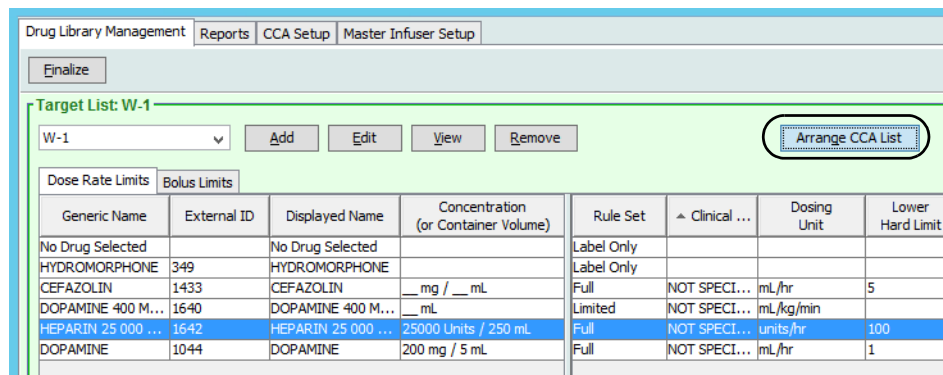
## Changing the Display Order of Medication Entries

**Note:** Only users with the appropriate login privileges are able to change the display order of medication entries.

**Important:** The order in which the medications appear in the target list panel may not be the order in which the medications will appear on the infuser.

**To change or view the order in which medication entries are displayed:**

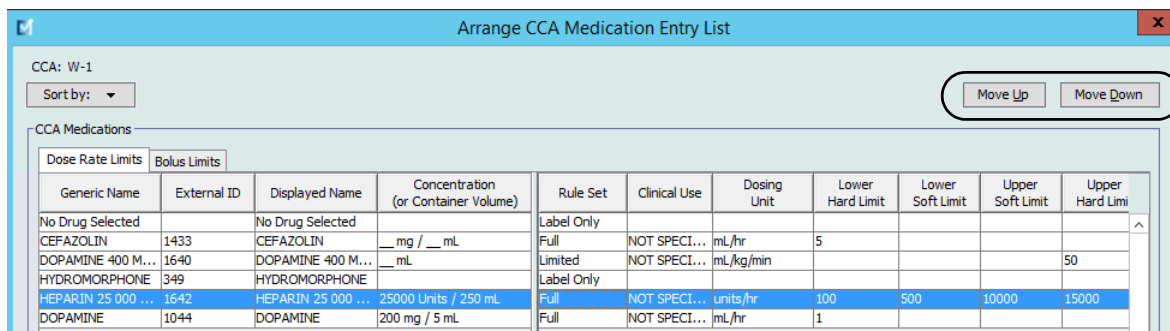
1. From the Target List, select a CCA.
2. Click **Arrange CCA List**.



3. Select the medication entry you want to move.

**Helpful Hint:** You can select multiple medications to move by highlighting them.

4. Click **Move Up** or **Move Down** to position the selected medication entries.

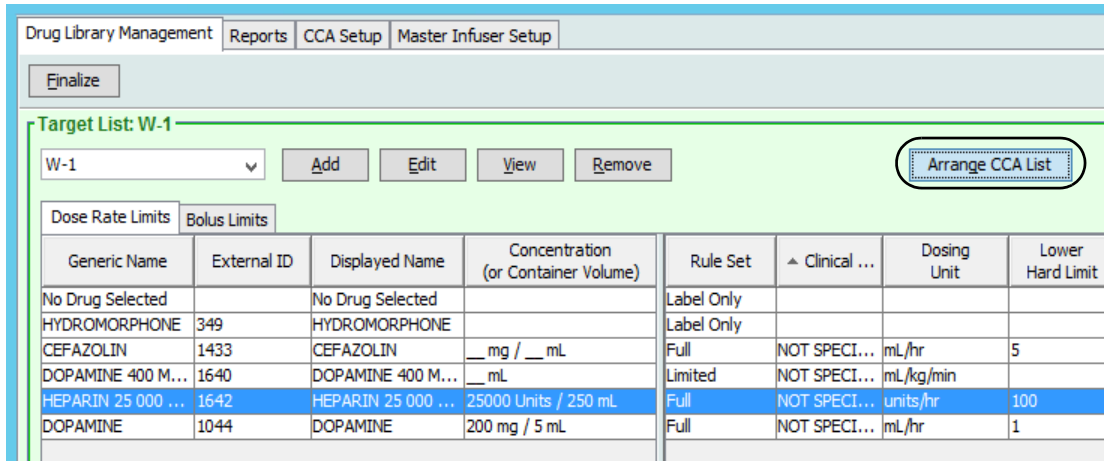


5. Repeat for all medication entries as needed.
6. Click **Save**.

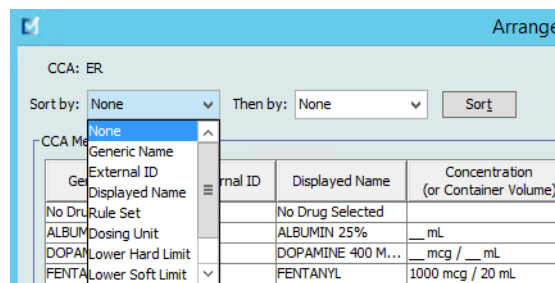
Medication entries newly added to a CCA are placed at the bottom of the assigned medications list.

## Sorting the medication entries within a CCA:

1. From the Library Directory view, open a Worksheet for editing.
2. On the Drug Library Management view, select a CCA from the Target List.
3. Click **Arrange CCA List**.

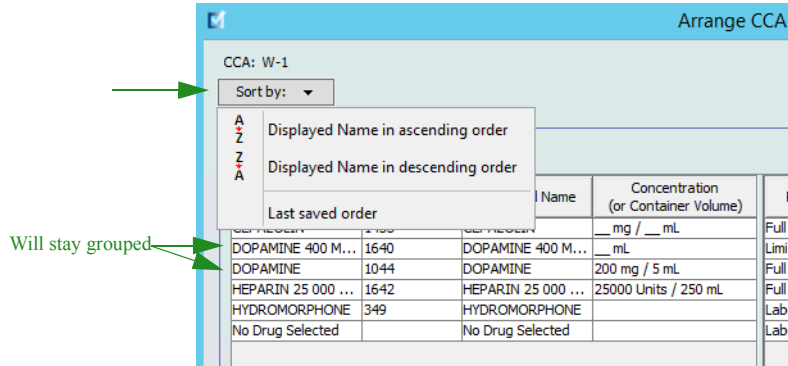


4. On the pop-up that appears, from the **Sort By** list, select the primary sorting criteria from the list. The selection will vary according to the infuser.



5. From the **Then By** list, select the secondary sorting criteria, if desired.
6. Click **Sort by**.

For the Plum 360, the **Sort By:** button gives you the option to sort by the Displayed Name in either ascending or descending order. Medication entries with the same Displayed Name will remain together. (See the ICU Medical MedNet Software Device Compatibility Matrix to determine the availability of the Plum version(s). The matrix is available through your Technical Support Center.)

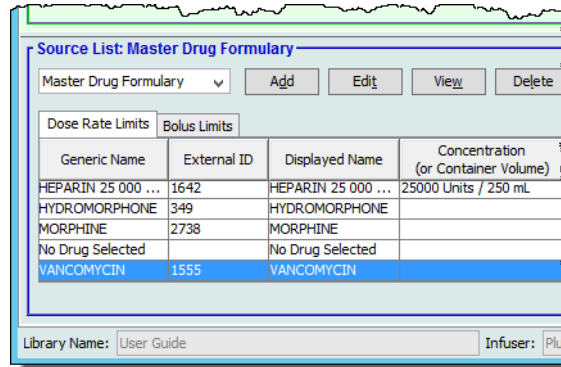




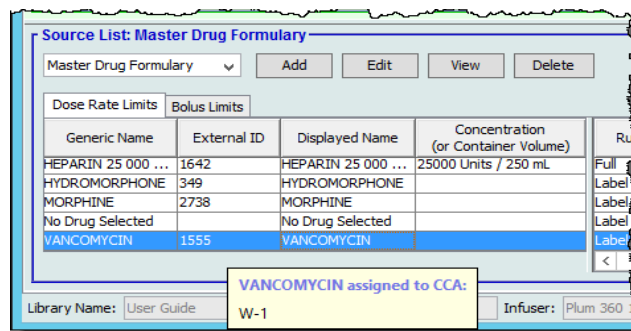
## Viewing Medication Entries in the Master Drug Formulary

To view a medication entry in the Master Drug Formulary:

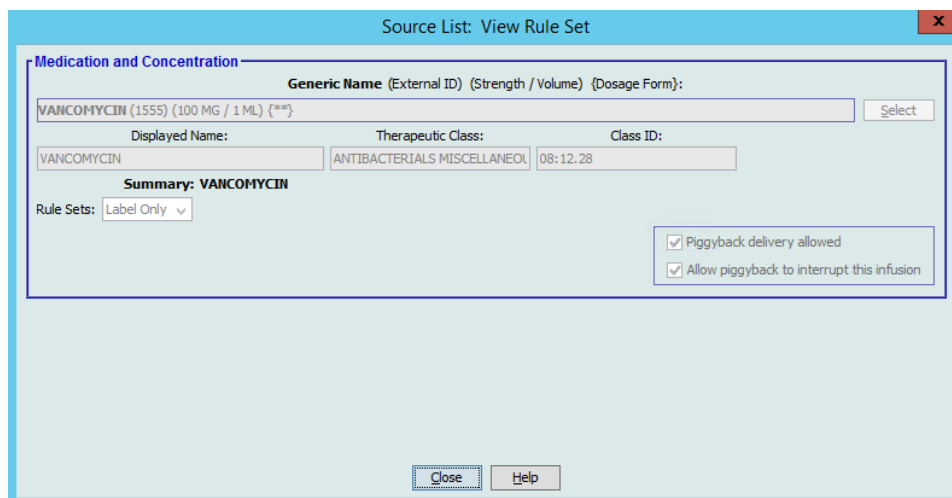
1. Select **Master Drug Formulary** as the source location.



**Helpful Hint:** If you hover your mouse pointer over any medication entry in the Master Drug Formulary, a “tool tip” displays the medication’s generic name and concentration as well as the CCAs to which it has been assigned. The tool tip will disappear after 5 seconds.



2. Select the medication entry you want to view.
3. From the Source List, click **View**.

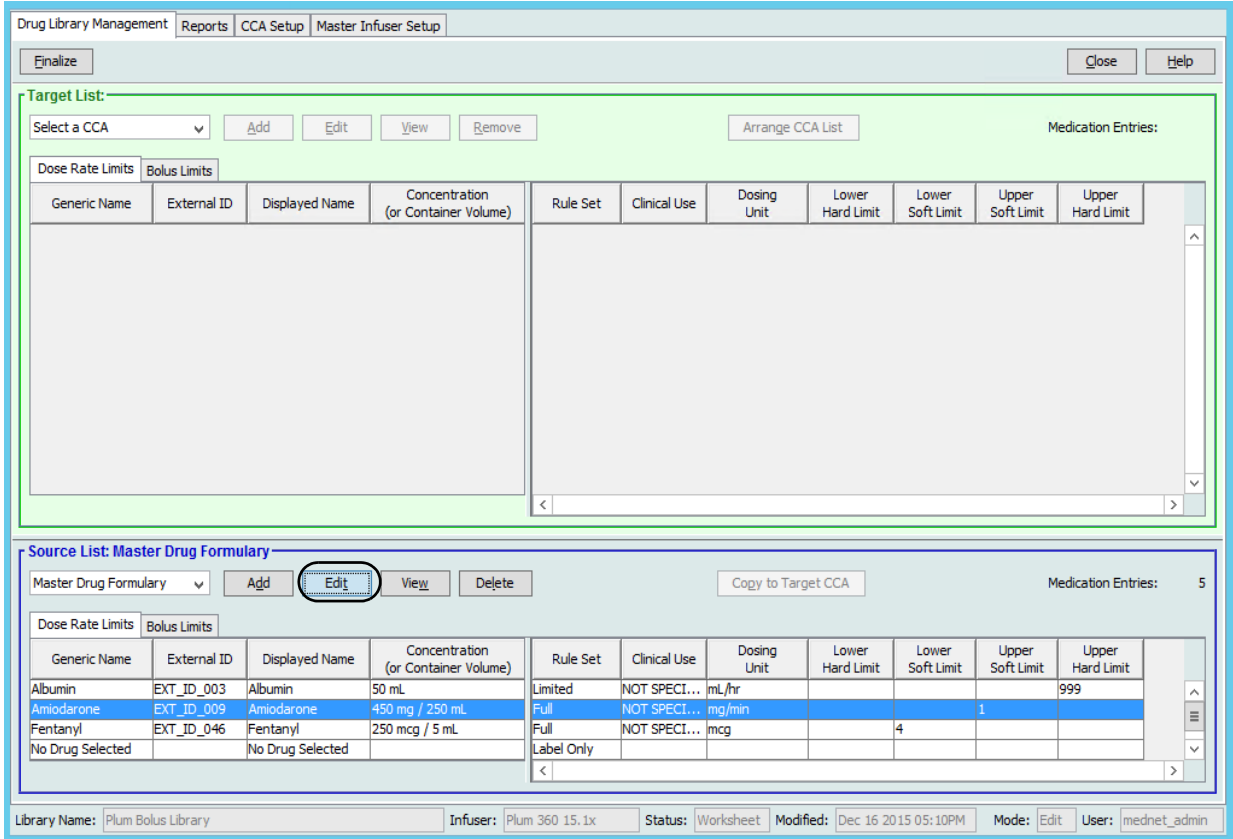


4. When you are finished viewing, click **Close**.

**Helpful Hint:** If you are viewing an Active or Archived library, you may also double-click the medication entry to view it.

## Keeping or Clearing Rule Sets for Medication Entries

1. Highlight a medication entry with existing rule sets, in either the Source List Master Drug Formulary or Target List.
2. Click **Edit**.



The screenshot shows the 'Source List: Master Drug Formulary' window. The 'Edit' button is highlighted with a red circle. The table below shows medication entries with their respective rule sets.

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Rule Set	Clinical Use	Dosing Unit	Lower Hard Limit	Lower Soft Limit	Upper Soft Limit	Upper Hard Limit
Albumin	EXT_ID_003	Albumin	50 mL	Limited	NOT SPECI...	mL/hr				999
Amiodarone	EXT_ID_009	Amiodarone	450 mg / 250 mL	Full	NOT SPECI...	mg/min			1	
Fentanyl	EXT_ID_046	Fentanyl	250 mcg / 5 mL	Full	NOT SPECI...	mcg		4		
No Drug Selected		No Drug Selected		Label Only						

Library Name: Plum Bolus Library    Infuser: Plum 360 15.1x    Status: Worksheet    Modified: Dec 16 2015 05:10PM    Mode: Edit    User: mednet\_admin

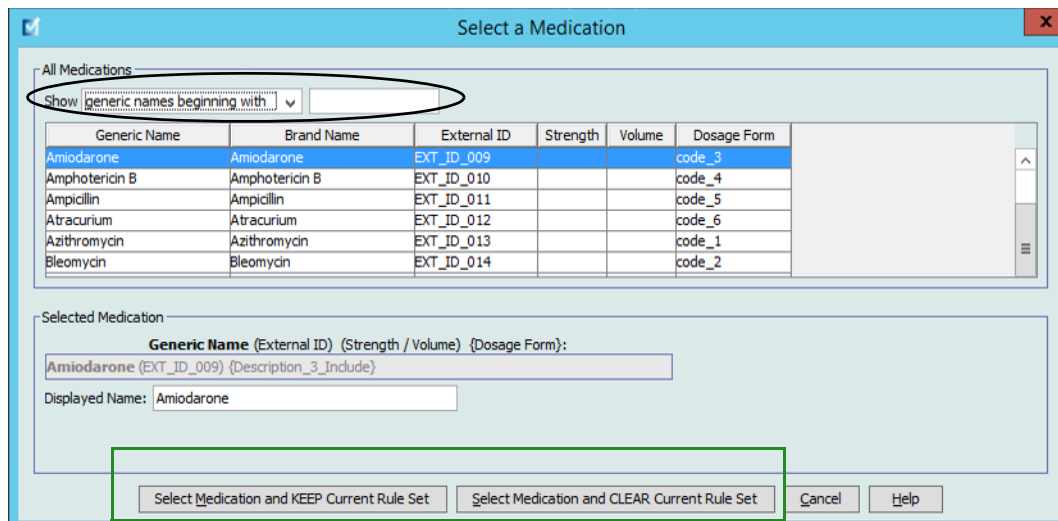
The selected medication entry displays with its rule sets.

3. Click **Select**.

The screenshot shows a software window titled "Source List: Edit Rule Set". The main content area is titled "Medication and Concentration" and is enclosed in a blue border. At the top of this section, there is a header "Generic Name (External ID) (Strength / Volume) (Dosage Form):" followed by a text field containing "Amiodarone (EXT\_ID\_009) (Description\_3\_Include)". To the right of this field is a button labeled "Select", which is circled in red. Below this are three input fields: "Displayed Name:" with "Amiodarone", "Therapeutic Class:" with "Class\_Descr\_09", and "Class ID:" with "class\_09". A summary line reads "Summary: Amiodarone 450 mg / 250 mL for Clinical Use "\_\_\_" Dosed in mg/min". Below the summary is a "Rule Sets:" dropdown menu set to "Full". A "Concentration" section contains three input fields: "Medication Amount:" (450), "Medication Unit:" (mg), and "Diluent Amount: mL" (250). To the right of these are two checked checkboxes: "Piggyback delivery allowed" and "Allow piggyback to interrupt this infusion". Below the concentration section is a "Clinical Use (optional)" section with a text input field and a note: "If the Clinical Use is blank, it will be updated with the value in the Default Clinical Use from the Master Infuser Setup." There is also an unchecked checkbox for "Enable Bolus". At the bottom of the form is a "Dose Limits" section with a "Dosing Unit:" dropdown (mg/min) and five input fields for "LHL:", "LSL:", "USL:" (containing the value 1), and "UHL:". At the very bottom of the window are three buttons: "Save & Close", "Cancel", and "Help".

At this point, you will be able to either apply the current Rule Set to another medication or select the medication highlighted and clear its current Rule Set.

4. If you click **Select Medication and CLEAR Current Rule Set**, a confirmation message displays: **Rule set will be reset to default values.**
5. Click **OK** and the medication entry selected displays but the rule set fields are now empty.
6. You can now fill in the new rule set and then click **Save and Close** when satisfied or use the **Cancel** button.



7. If you want to keep the rule set of the medication entry highlighted but want to apply that rule set to another medication:
  - Highlight the “new” medication entry

**Helpful Hint:** To select the medication, you can use the scroll bar or type the first letter(s) of the medication or the entire name next to **Show generic names beginning with**. You can also find the medication by external ID if you use the drop-down button and select to show the medication using the **External ID**, then entering the External ID.

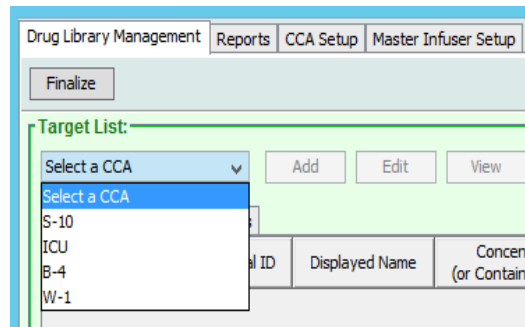
- Click **Select Medication and KEEP Current Rule Set**

A confirmation message displays: **Review rule set values before saving this rule set.**

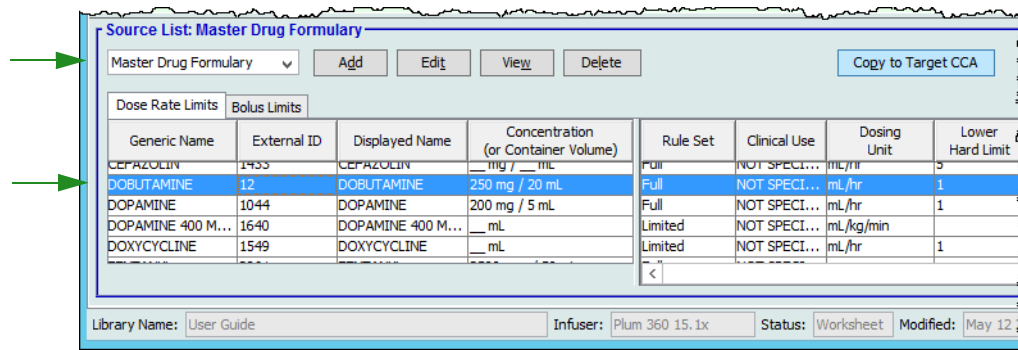
8. Click **OK**.
9. The new entry displays. Click **Save and Close** if the entry is to your satisfaction. If not, use the **Cancel** button.

## Copying Medication Entries to one or more CCAs

1. Select the target CCA to which you want to copy a medication entry.



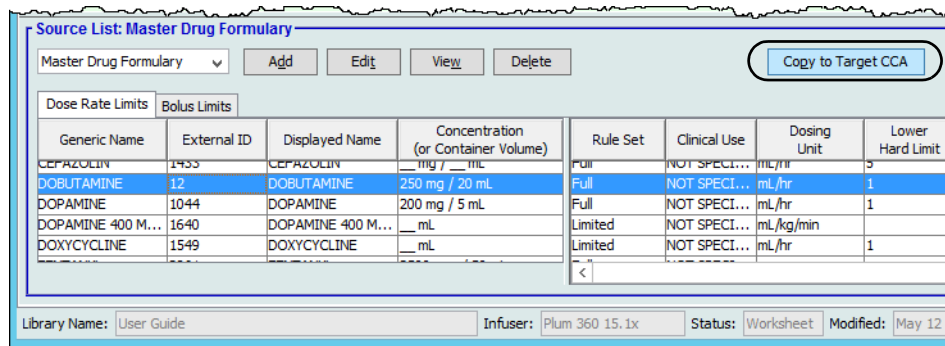
2. Select the Master Drug Formulary or Source CCA from which you want to copy a medication entry (either the Master Drug Formulary or another CCA).



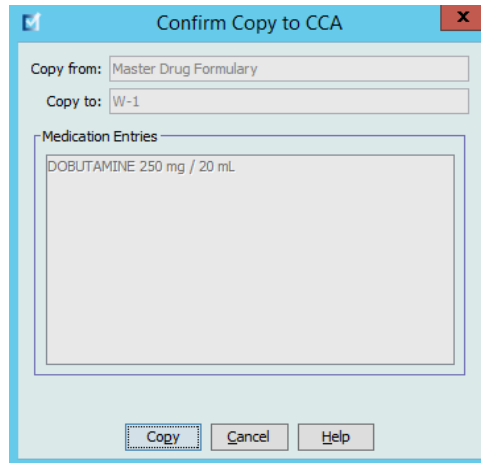
3. Select the medication entries you want to copy from the source CCA.

**Helpful Hint:** You may select multiple entries by clicking the first medication entry you want to copy, and holding the shift key while clicking the last medication entry you want to copy. Add or remove medications from the group you have selected by using the Control key.

4. Click **Copy to Target CCA**.



5. Verify you have selected the correct medication entries.



6. Click **Copy** to copy the selected medication entries to the target CCA.

---

**Note:** The maximum number of medication entries in a CCA is 25 for a LifeCare PCA, and 150 for the Plum A+. For certain Plum infusers licensed for Drug Library Size Level 2, a CCA can contain up to 400 medication entries. (See the ICU Medical MedNet Software Device Compatibility Matrix to determine the availability of the Plum version. The matrix is available through the Technical Support Center).

---

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**Note:** Duplicate or conflicting medication entries cannot be copied.

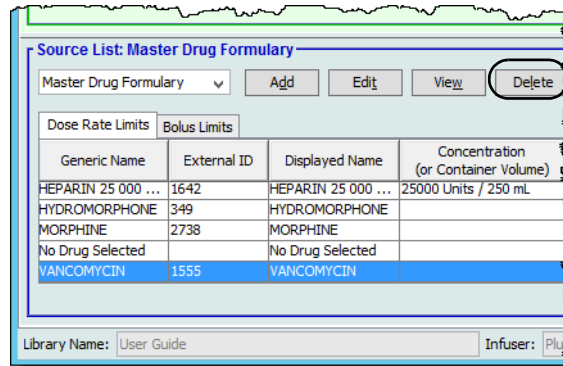
---

## Deleting Medication Entries from the Master Drug Formulary

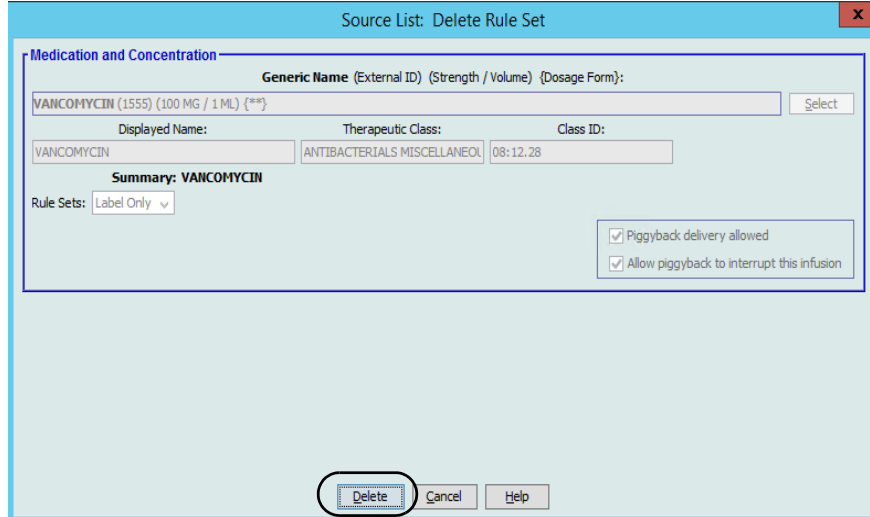
**Note:** Deleted medication entries are permanently removed from the Master Drug Formulary and from all CCAs in which they appear.

Only users with the appropriate login privileges are able to delete medication entries from the Master Drug Formulary.

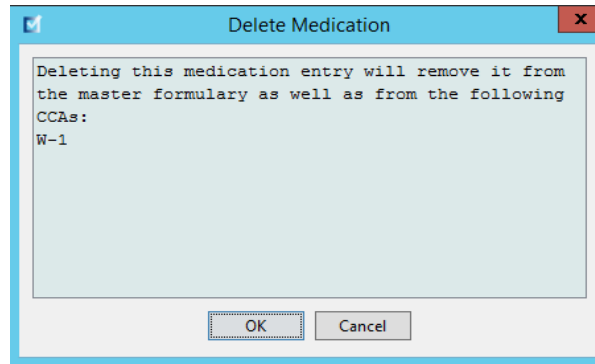
1. Select **Master Drug Formulary** as the Source List.



2. From the Source List, select the medication entry you want to delete.
3. Click **Delete**.
4. From the Source List: Delete Rule Set window, click **Delete**.



5. A confirmation message displays listing all affected CCAs. Click **OK** to permanently remove the selected medication entry from the Master Drug Formulary and all CCAs in which it appears.



---

**Note:** You cannot delete the “No Drug Selected” entry from a Plum A+ Master Drug Formulary, or any CCA.

---



## Finalizing Worksheets

**Note:** Before finalizing a Worksheet, we recommend that a qualified person such as a hospital pharmacist or a multidisciplinary committee of clinicians review the drug library for accuracy, per hospital policy.

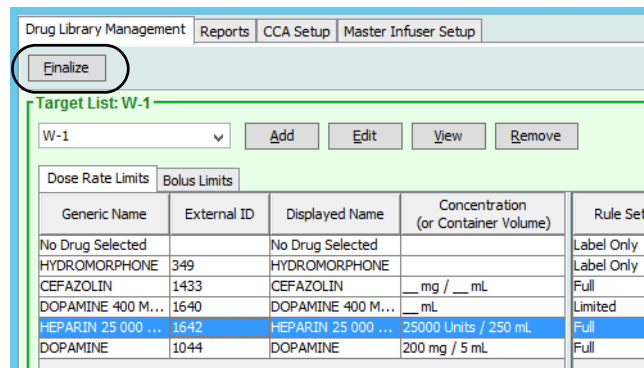
Only users with the appropriate login privileges are able to finalize a Worksheet.

Certificates are required in order to finalize drug libraries.

### To finalize a Worksheet:

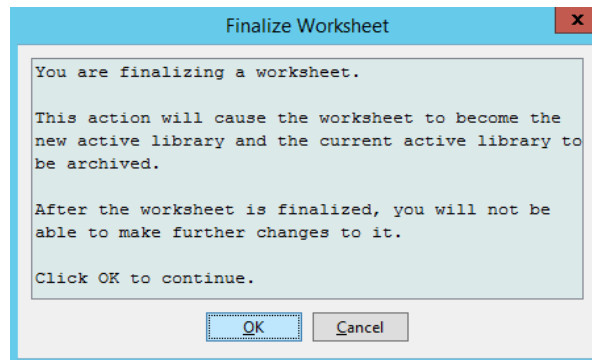
**Note:** The Generic Name and External ID of a medication entry must be present in the Master Drug Formulary for the Worksheet to be finalized.

1. From the Drug Library Management view, click **Finalize**.



**Note:** Once the finalization process begins, it cannot be stopped or undone.

2. Click **OK** to finalize the Worksheet.



3. A progress bar appears briefly.

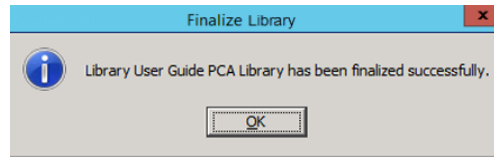
**Important:** If your network connection is lost during the finalization process, copy the library that was being finalized, and then finalize the library.

---

**Note:** Finalization may require several minutes for large libraries. A message may display if the library does not finalize successfully within 20 minutes.

---

4. A pop-up confirms that the Worksheet has been finalized successfully.



5. Click **OK**.

The Date Finalized displays in the Library Directory.

## Closing Worksheets

### To close a Worksheet:

1. From the Drug Library Management view, click **Close**.  
You will be returned to the Library Directory view.

---

**Note:** When you close a worksheet, that worksheet is saved.

---

# Chapter 7: ICU Medical MedNet Meds Reports

## Overview

The ICU Medical MedNet Meds Reports view allows you to create and print reports on drug libraries for the licensed infusers. For individual report details, refer to the report by name later in this chapter.

---

**Note:** For information about the ICU Medical MedNet Software reports, see **Chapter 16: Reports** in the ICU Medical MedNet Software User Guide.

---

## Report Conventions

The following conventions are common to all reports:

- Users with the appropriate logon privileges have access to the Reports View.
- Drop-down lists display all valid selections.
- Fields appear blank when no data is available.

## Report Details

Reports may span multiple pages and are navigable using the vertical and horizontal scroll bars.

All Drug Library reports display the following information:

Licensed Infusers	
Field	Description
Drug Library	The name of the drug library or Worksheet
Infuser Type	The type of infuser
Date Finalized	The date or time when the Active library or Archive was finalized (not available for Worksheets)
Library State	The state of the library: Active, Archive, or Worksheet

Additional details will vary depending on the infuser you select, as described later in this chapter.

The reports will also reflect the date format and distal pressure specific to the configuration you selected.

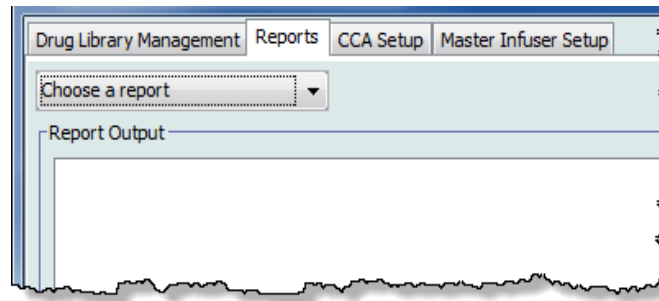
---

**Note:** The structure of reports from ICU Medical MedNet Meds cannot be altered or configured by the user.

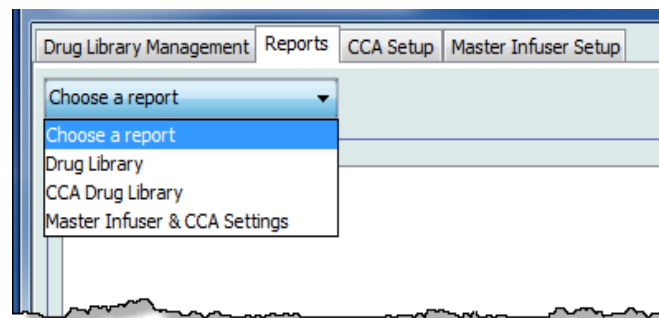
---

**To display the Reports page:**

1. Open a Worksheet or library. (For instructions on opening a Worksheet or library, see [Chapter 5: The Library Directory on page 35](#))
2. Click the **Reports** tab.



3. Select a report from the **Choose a report** drop-down list.  
The report selection will vary depending on the infuser, as described further in this chapter.



# Plum A+ and Plum 360 Drug Library Reports

The following reports are available:

- Drug Library
- CCA Drug Library
- Master Infuser & CCA Settings

## Plum 360 Drug Library

This report displays detailed information on all medications in the Plum 360 Master Drug Formulary.

The screenshot shows a software window titled "ICU Medical MedNet™ Meds™ - PLUM-1501-DL". The interface includes a menu bar with "Drug Library Management", "Reports", "CCA Setup", and "Master Infuser Setup". A dropdown menu is set to "Drug Library". Buttons for "Print", "Save to File", "Close", and "Help" are visible. The main area is labeled "Report Output" and contains a table with the following data:

Drug Library	Infuser Type	Date Finalized	Library State
PLUM-1501-DL	Plum 360 15.0x	Nov 01 2017 01:19PM	Active

Generic Name	Displayed Name	Concentration (or Container Volume)	Rule Sets	Clinical Use	Dosing Unit	LHL	LSL	USL	UHL	External ID	Therapeutic Class	Class ID
Acyclovir	Acyclovir	100 mcg / 200 mL	Full	NOT SPECIFIED	mL/hr	1				EXT_ID_002	Class_Descr_02	class_02
Piggyback delivery allowed: Yes												
Allow piggyback to interrupt this infusion: Yes												
Assigned CCAs: BH												
Alteplase (rt-PA)	Alteplase (rt-PA)	125 grams / 200 mL	Full	NOT SPECIFIED	mL/kg	1				EXT_ID_006	Class_Descr_06	class_06
Piggyback delivery allowed: Yes												
Allow piggyback to interrupt this infusion: Yes												
Assigned CCAs: BH												
No Drug Selected	No Drug Selected		Label Only									
Piggyback delivery allowed: Yes												
Allow piggyback to interrupt this infusion: Yes												
Assigned CCAs: BH												

Page 1 of 1

Library Name: PLUM-1501-DL    Infuser: Plum 360 15.0x    Status: Active    Modified: Nov 01 2017 01:19PM    Finalized: Nov 01 2017 01:19PM    Mode: View    User: imednet\_admin

## Plum 360 15.1 Drug Library

ICU Medical MedNet™ Meds™ - Plum 15.1x DL

Drug Library Management Reports CCA Setup Master Infuser Setup

Drug Library [v] Print Save to File Close Help

Report Output

[Next](#) [Last](#)

Drug Library	Infuser Type	Date Finalized	Library State
Plum 15.1x DL	Plum 360 15.1x	N/A	Worksheet

Rule Set Groups	Dosing Unit	LHL	LSL	USL	UHL	Assigned CCAs
<b>Generic Name:</b>		<b>External ID:</b>		<b>Therapeutic Class:</b>		<b>Class ID:</b>
Displayed Name: *Heparin UNITS / HR		Rule Sets: Full		Concentration (or Container Volume): 25000 Units / 250 mL		
Piggyback delivery allowed: Yes				Allow piggyback to interrupt this infusion: Yes		
Clinical Use: NOT SPECIFIED		Enable Bolus: No		Maximum Bolus Amount:		
Dose Limits	units/hr	50		3000	4000	ICU
Time Limits						
Dose Rate Limits						
Bolus Limits - Amount						
Bolus Limits - Time						
Bolus Limits - Dose Rate						

Library Name: Plum 15.1x DL Infuser: Plum 360 15.1x Status: Worksheet Modified: Jul 06 2017 04:19PM Mode: Edit User: mednet\_admin

Plum 360	
Medication Entries	Description
Generic Name	The generic name of the medication
Displayed Name	The medication name that displays on the infuser
Concentration (or Container Volume) <sup>1</sup>	Concatenation (combination) of medication amount, medication unit, diluent amount, and diluent unit
Rule Set Groups	The type of rule set created for the medication. Includes full, limited, and label only
Clinical Use (Plum 360 only)	The clinical use attributed to the medication
Dosing Unit	The dosing unit selected for the medication
LHL	Lower Hard Limit - the lower limit that cannot be overridden
LSL	Lower Soft Limit - the lower limit that can be overridden
USL	Upper Soft Limit - the upper limit that can be overridden
UHL	Upper Hard Limit - the upper limit that cannot be overridden
Assigned CCAs	CCAs to which the drug is assigned
External ID	The ID number used to match an order to the medication entry in the drug library
Therapeutic Class	Therapeutic class assigned to the medication entry

<b>Plum 360</b>	
<b>Medication Entries</b>	<b>Description</b>
Class ID	The ID number for the therapeutic class
Piggyback delivery allowed	Indicates whether this option was selected
Allow piggyback to interrupt this infusion	Indicates whether this option was selected
Enable Bolus	Indicates whether this option was selected
Maximum Bolus Amount	The maximum bolus amount selected for the medication entry
Dose Limits	The medication's dose unit and its specified limits
Time Limits	The medication's time-based unit and its specified limits
Dose Rate Limits (Plum 360 with Bolus only)	Indicates the allowable non-time-based limits selected for the medication entry
Bolus Limits (Plum 360 with Bolus only)	Indicates the bolus limits for amount, time, and dose rate
<sup>1</sup> When the rule type is Limited, this field displays the container volume	

## Plum A+ Drug Library

This report displays detailed information on all medications in the Plum A+ Master Drug Formulary.

Drug Library Management | Reports | CCA Setup | Master Infuser Setup

Drug Library

Print | Save to File | Close | Help

Report Output

Drug Library	Infuser Type	Date Finalized	Library State
Sample	Plum A+ 13.x	N/A	Worksheet

Generic Name	Displayed Name	Concentration (or Container Volume)	Rule Sets	Dosing Unit	LHL	LSL	USL	UHL	External ID	Therapeut Class
No Drug Selected	No Drug Selected		Label Only							
Assigned CCAs: Anesthesia, ER, MICU, SICU										
ALBUMIN 25%	ALBUMIN 25%	__ mL	Limited	mL/hr				999	424	BLOOD DERIVATIVE
Assigned CCAs: ER										
DOPAMINE 400 MG-D5W	DOPAMINE 400 MG-D5	__ mcg / __ mL	Full	mcg/kg/hr		5	10		1640	BETA-ADRENERGIC
Assigned CCAs: ER										
FENTANYL	FENTANYL	1000 mcg / 20 mL	Full	mcg/hr			300		653	OPIATE AGONISTS
Assigned CCAs: ER										
HEPARIN 25 000 UNITS-D5W	HEPARIN 25 000 UNITS-	25000 units / __ mL	Full	units/hr		200			1642	ANTICOAGULANTS
Assigned CCAs: ER										

Page 1 of 1

Library Name: Sample | Infuser: Plum A+ 13.x | Status: Worksheet | Modified: May 12 2016 05:05PM | Mode: Edit | User: mednet\_admin

Plum A+	
Medication Entries	Description
Generic Name	The generic name of the medication
Displayed Name	The medication name that displays on the infuser
Concentration (or Container Volume) <sup>1</sup>	Concatenation (combination) of medication amount, medication unit, diluent amount, and diluent unit
Rule Sets	The type of rule set created for the medication. Includes full, limited, and label only



<b>Plum A+</b>	
<b>Medication Entries</b>	<b>Description</b>
Dosing Unit	The dosing unit selected for the medication
LHL	Lower Hard Limit - the lower limit that cannot be overridden
LSL	Lower Soft Limit - the lower limit that can be overridden
USL	Upper Soft Limit - the upper limit that can be overridden
UHL	Upper Hard Limit - the upper limit that cannot be overridden
Assigned CCAs	CCAs to which the drug is assigned
External ID	The ID number used to match an order to the medication entry in the drug library
Therapeutic Class	Therapeutic class assigned to the medication entry
Class ID	The ID number for the therapeutic class
<sup>1</sup> When the rule type is Limited, this field displays the container volume	

## Plum 360 - CCA Drug Library

This report shows each CCA along with its associated medication entries. CCAs are listed in the order in which they are created.

Drug Library	Infuser Type	Date Finalized	Library State
Plum User Guide Library	Plum 360	N/A	Worksheet

Generic Name	Displayed Name	Concentration (or Container Volume)	Rule Sets	Clinical Use	Dosing Unit	LHL	LSL	USL	UHL	External ID	Therapeutic Class	Class ID
CCA Name: UNC												
No Drug Selected	No Drug Selected		Label Only									
Piggyback delivery allowed: Yes												
Allow piggyback to interrupt this infusion: Yes												
Assigned CCAs: 5 West, Bolus, ICU, UNC												
CCA Name: ICU												
No Drug Selected	No Drug Selected		Label Only									
Piggyback delivery allowed: Yes												

Library Name: Plum User Guide Library    Infuser: Plum A+ 15.x    Status: Worksheet    Modified: Aug 16 2013 01:09PM    Mode: Edit    User: mednet\_admin

## Plum 360 15.1 - CCA Drug Library

Drug Library	Infuser Type	Date Finalized	Library State
Plum 15.1x DL	Plum 360 15.1x	N/A	Worksheet

Rule Set Groups	Dosing Unit	LHL	LSL	USL	UHL	Assigned CCAs
CCA Name: Main						
Generic Name: No Drug Selected		External ID:		Therapeutic Class:		Class ID:
Displayed Name: No Drug Selected		Rule Sets: Label Only		Concentration (or Container Volume):		
Piggyback delivery allowed: Yes				Allow piggyback to interrupt this infusion: Yes		
Clinical Use:			Enable Bolus: No		Maximum Bolus Amount:	
Dose Limits	mL/hr					Adult, Emergency, ENT, ICU, Onc, Orth, Pain, Telemetry
Time Limits						
Dose Rate Limits						
Bolus Limits - Amount						
Bolus Limits - Time						
Bolus Limits - Dose Rate						
Generic Name:		External ID:		Therapeutic Class:		Class ID:
Displayed Name: IVF 1000mL		Rule Sets: Limited		Concentration (or Container Volume): 1000 mL		
Piggyback delivery allowed: Yes				Allow piggyback to interrupt this infusion: Yes		
Clinical Use: NOT SPECIFIED			Enable Bolus: No		Maximum Bolus Amount:	
Dose Limits	mL/hr	1	5		999	
Time Limits						

Library Name: Plum 15.1x DL    Infuser: Plum 360 15.1x    Status: Worksheet    Modified: Jul 06 2017 04:19PM    Mode: Edit    User: mednet\_admin

<b>Plum 360</b>	
<b>Medication Entries</b>	<b>Description</b>
Generic Name	The generic name of the medication
Displayed Name	The medication name that displays on the infuser
Concentration (or Container Volume) <sup>1</sup>	Concatenation (combination) of medication amount, medication unit, diluent amount, and diluent unit
Rule Set Groups	The type of rule set created for the medication. Includes full, limited, and label only
Clinical Use (Plum 360 only)	The clinical use attributed to the medication
Dosing Unit	The dosing unit selected for the medication
LHL	Lower Hard Limit - the lower limit that cannot be overridden
LSL	Lower Soft Limit - the lower limit that can be overridden
USL	Upper Soft Limit - the upper limit that can be overridden
UHL	Upper Hard Limit - the upper limit that cannot be overridden
Assigned CCAs	CCAs to which the drug is assigned
External ID	The ID number used to match an order to the medication entry in the drug library
Therapeutic Class	Therapeutic class assigned to the medication entry
Class ID	The ID number for the therapeutic class
Piggyback delivery allowed	Indicates whether this option was selected
Allow piggyback to interrupt this infusion	Indicates whether this option was selected
Dose Limits	The medication's dose unit and its specified limits
Time Limits	The medication's time-based unit and its specified limits
Dose Rate Limits (Plum 360 with Bolus only)	Indicates the allowable non-time-based limits selected for the medication entry
Bolus Limits (Plum 360 with Bolus only)	Indicates the bolus limits for amount, time, and dose rate
<sup>1</sup> When the rule type is Limited, this field displays the container volume	

## Plum A+ - CCA Drug Library

This report shows each CCA along with its associated medication entries. CCAs are listed in the order in which they are created.

Drug Library	Infuser Type	Date Finalized	Library State
Sample	Plum A+ 13.x	N/A	Worksheet

Generic Name	Displayed Name	Concentration (or Container Volume)	Rule Sets	Dosing Unit	LHL	LSL	USL	UHL	External ID	Therapeutic Class	Class ID
CCA Name: ER											
No Drug Selected	No Drug Selected		Label Only								
Assigned CCAs: Anesthesia, ER, MICU, SICU											
ALBUMIN 25%	ALBUMIN 25%	__ mL	Limited	mL/hr				999	424	BLOOD DERIVATIVES	16:00.00
Assigned CCAs: ER											
DOPAMINE 400 MG-D5W	DOPAMINE 400 MG-D5	__ mcg / __ mL	Full	mcg/kg/hr	5	10			1640	BETA-ADRENERGIC AGONISTS	12:12.08
Assigned CCAs: ER											
FENTANYL	FENTANYL	1000 mcg / 20 mL	Full	mcg/hr				300	653	OPIATE AGONISTS	28:08.08
Assigned CCAs: ER											
HEPARIN 25 000 UNITS-D5W	HEPARIN 25 000 UNITS-	25000 units / __ mL	Full	units/hr		200			1642	ANTICOAGULANTS	20:12.04
Assigned CCAs: ER											
CCA Name: SICU											
No Drug Selected	No Drug Selected		Label Only								

Library Name: Sample      Infuser: Plum A+ 13.x      Status: Worksheet      Modified: May 12 2016 05:05PM      Mode: Edit      User: mednet\_admin

Plum A+	
Medication Entries	Description
Generic Name	The generic name of the medication
Displayed Name	The medication name that displays on the infuser
Concentration (or Container Volume) <sup>1</sup>	Concatenation (combination) of medication amount, medication unit, diluent amount, and diluent unit
Rule Sets	The type of rule set created for the medication. Includes full, limited, and label only
Dosing Unit	The dosing unit selected for the medication
LHL	Lower Hard Limit - the lower limit that cannot be overridden
LSL	Lower Soft Limit - the lower limit that can be overridden
USL	Upper Soft Limit - the upper limit that can be overridden
UHL	Upper Hard Limit - the upper limit that cannot be overridden
Assigned CCAs	CCAs to which the drug is assigned
External ID	The ID number used to match an order to the medication entry in the drug library
Therapeutic Class	Therapeutic class assigned to the medication entry
Class ID	The ID number for the therapeutic class
<sup>1</sup> When the rule type is Limited, this field displays the container volume	

## Plum 360 Master Infuser and CCA Settings

This report displays detailed information on all Plum 360 master infusers and active CCA settings.

Drug Library Management | Reports | CCA Setup | Master Infuser Setup

Master Infuser & CCA Settings

Print Save to File Close Help

Report Output

[Next](#) [Last](#)

Drug Library	Infuser Type	Date Finalized	Library State
New Plum for User Guide	Plum 360 15.x	N/A	Worksheet

**Master Infuser Settings**

Continue Rate	KVO	Callback Notification	No
Deliver Together	Piggyback	Force Pump to Accept Drug Library During Power Down	No
Auto-program Rejection Reason Timeout (seconds)	15	Maximum Standby Time (hours)	72
Default Clinical Use	NOT SPECIFIED		

**CCA Settings**

CCA Name: Critical Care Service Line: ICU - medical

Patient Limits	Minimum Value	Maximum Value
BSA	0.012 m <sup>2</sup>	7.07 m <sup>2</sup>
Patient Height	7.5 cm	305 cm
Patient Weight	0.1 kg	500 kg

Alarm Settings	Item	Value
Distal Occlusion Pressure	Default Setting	6 psi
Occlusion Pressure Auto-Reset	Distal Occlusion Auto-Reset	0

Other Infuser Parameters	Item	Value
Other Settings	Delayed Start	Enabled
	Standby	Enabled
Maximum Dose Rate (mL/hr)	Maximum Dose Rate	999 mL/hr

Library Name: New Plum for User Guide Infuser: Plum 360 15.x Status: Worksheet Modified: Jul 14 2014 06:19PM Mode: Edit User: mednet\_admin

<b>Plum 360</b>	
<b>Master Infuser Settings</b>	<b>Description</b>
Continue Rate	The default delivery rate the infuser switches to after a therapy completes: KVO or programmed rate
Callback Notification	The default callback setting: Yes or No
Deliver Together	The default deliver together method: Piggyback or Concurrent
Force Pump to Accept Drug Library Power Down	To automatically install a new Medication Library upon infuser turn off. The default is No.
Auto-program Rejection Reason Timeout (seconds)	The amount of time a rejection reason appears on the infuser
Maximum Standby Time (hours)	The period of time the infuser can wait before beginning a therapy
Default Clinical Use	The default clinical use entered that will replace “Not Specified” fields in the rule set
<b>CCA Settings</b>	<b>Description</b>
CCA Name	The CCA name
Service Line	The service line name
BSA	The minimum and maximum value
Patient Height	The minimum and maximum patient height
Patient Weight	The minimum and maximum patient weight
Distal Occlusion Pressure	The default and maximum setting
Occlusion Pressure Auto-Reset	The occlusion pressure auto-resets
Distal Occlusion Auto-Reset	The distal occlusion auto-resets
Delayed Start	The default delay start setting: Enabled or Disabled
Standby	The default setting to Enable or Disable standby before the beginning of a therapy
Maximum Dose Rate (mL/hr)	The maximum delivery rate

## Plum A+ Master Infuser and CCA Settings

This report displays detailed information on all Plum A+ master infusers and active CCA settings.

Drug Library	Infuser Type	Date Finalized	Library State
Sample	Plum A+ 13.x	N/A	Worksheet

**Master Infuser Settings**

Continue Rate	Callback Notification	Delay Start	Deliver Together
KVO	No	Yes	Piggyback

**CCA Settings**

CCA Name	Service Line	Default Occlusion Pressure	Minimum Patient Weight	Maximum Patient Weight	Maximum Rate
ER	Emergency services	6	0.1	500	999
SICU	ICU - surgical	6	0.1	500	999
MICU	ICU - medical	6	0.1	500	999
Anesthesia	Anesthesia	6	0.1	500	999

Page 1 of 1

Library Name: Sample    Infuser: Plum A+ 13.x    Status: Worksheet    Modified: May 12 2016 05:05PM    Mode: Edit    User: mednet\_admin

Plum A+	
Master Infuser Settings	Description
Continue Rate	The default delivery rate the infuser switches to after a therapy completes: KVO or programmed rate
Callback Notification	The default callback setting: Yes or No
Delay Start	The default delay start setting: Yes (Enabled) or No (Disabled)
Deliver Together	The default deliver together method: Piggyback or Concurrent
CCA Settings	Description
CCA Name	The CCA name
Service Line	The service line name
Default Occlusion Pressure	The default minimum pressure that will cause the infuser to report an occlusion alarm
Minimum Patient Weight	The minimum patient weight allowed in the CCA
Maximum Patient Weight	The maximum patient weight allowed in the CCA
Maximum Rate	The maximum delivery rate allowed in the CCA

# LifeCare PCA Drug Library Reports

The following reports are available for the LifeCare PCA infuser:

- Drug Library
- CCA Drug Library
- Master Infuser & CCA Settings
- LifeCare PCA Master Protocol

## LifeCare PCA Drug Library

This report displays detailed information on all medications in the LifeCare PCA Master Drug Formulary.

ICU Medical MedNet™ Meds™ - Drug Library

Drug Library Management | Reports | CCA Setup | Master Infuser Setup | Protocols

Drug Library (selected) | Print | Save to File | Close | Help

Report Output

Drug Library	Infuser Type	Date Finalized	Library State
Drug Library	LifeCare PCA 5.x/7.x	N/A	Worksheet

Generic Name	Displayed Name	Container Concentration	Rule Set Groups	LHL	LSL	USL	UHL	Assigned CCAs	External ID	Therapeutic Class	Class ID
morphine	morphine	30 mg / 30 mL	Loading Dose	0.1 mg	0.2 mg	3 mg	8 mg	5F, Oncology, Surgical	10369	None	None
	Bar Code 1: 0100304092029025	PCA Dose	0.1 mg	0.5 mg	3 mg	5 mg					
	Bar Code 2: 0100300742029025	Continuous Rate	0.1 mg/hr	0.2 mg/hr	2 mg/hr	4 mg/hr					
	Bar Code 3:	Dose Limit			15 mg	20 mg					
	Bar Code 4:	Time Interval	1-hour								
Bar Code 5:											
morphine	morphine	150 mg / 30 mL	Loading Dose	0.5 mg	1 mg	12 mg	20 mg	5F, Oncology	10369	None	None
	Bar Code 1: 0100304096028048	PCA Dose	0.5 mg	1 mg	7 mg	10 mg					
	Bar Code 2: 0100300746028048	Continuous Rate	0.5 mg/hr	1 mg/hr	25 mg/hr	50 mg/hr					
	Bar Code 3:	Dose Limit			50 mg	100 mg					
	Bar Code 4:	Time Interval	1-hour								
Bar Code 5:											
morphine	morphine	30 mg / 30 mL	Loading Dose	0.1 mg		3 mg	5 mg	High Dose	10369	None	None
	Bar Code 1: 0100304092029025	PCA Dose	0.1 mg		3 mg	5 mg					

Library Name: Drug Library | Infuser: LifeCare PCA 5.x/7.x | Status: Worksheet | Modified: May 09 2018 12:43PM | Mode: Edit | User: mednet\_admin



LifeCare PCA	
Field	Description
Generic Name	The generic name of the medication
Displayed Name	The medication name that displays on the infuser
Container Concentration	Concatenation (combination) of medication amount, medication unit, diluent amount, and diluent unit
Bar Code	The bar code(s) associated with the medication entry. Up to five bar codes are possible
Rule Set Groups	Dosing limits defined for the medication. Dosing limits can be defined for Loading Dose, Continuous Rate, PCA Dose, and Dose Limit
LHL	Lower Hard Limit - the lower limit that cannot be overridden
LSL	Lower Soft Limit - the lower limit that can be overridden
USL	Upper Soft Limit - the upper limit that can be overridden
UHL	Upper Hard Limit - the upper limit that cannot be overridden
Time Interval	Period of time over which the Dose Limit is evaluated
Assigned CCAs	CCAs to which the drug is assigned
External ID	The ID number used to match an order to the medication entry in the drug library
Therapeutic Class	Therapeutic class assigned to the medication
Class ID	The ID for the therapeutic class

# LifeCare PCA CCA Drug Library

This report provides information on all medication entries assigned to a specific CCA.

**Note:** This report lists CCAs in the order in which they were created.

ICU Medical MedNet™ Meds™ - Drug Library

Drug Library Management Reports CCA Setup Master Infuser Setup Protocols

CCA Drug Library

Print Save to File Close Help

Report Output

[Next](#) [Last](#)

Drug Library	Infuser Type	Date Finalized	Library State
Drug Library	LifeCare PCA 5.x/7.x	N/A	Worksheet

Generic Name	Displayed Name	Container Concentration	Rule Set Groups	LHL	LSL	USL	UHL	Assigned CCAs	External ID	Therapeutic Class	Class ID
<b>CCA Name: Surgical</b>											
morphine	morphine	30 mg / 30 mL	<b>Loading Dose</b>	0.1 mg	0.2 mg	3 mg	8 mg	5F, Oncology, Surgical	10369	None	None
	<b>Bar Code 1:</b> 0100304092029025	<b>PCA Dose</b>	0.1 mg	0.5 mg	3 mg	5 mg					
	<b>Bar Code 2:</b> 0100300742029025	<b>Continuous Rate</b>	0.1 mg/hr	0.2 mg/hr	2 mg/hr	4 mg/hr					
	<b>Bar Code 3:</b>	<b>Dose Limit</b>			15 mg	20 mg					
	<b>Bar Code 4:</b>	<b>Time Interval</b>	1-hour								
	<b>Bar Code 5:</b>										
<b>CCA Name: Oncology</b>											
morphine	morphine	150 mg / 30 mL	<b>Loading Dose</b>	0.5 mg	1 mg	12 mg	20 mg	5F, Oncology	10369	None	None
	<b>Bar Code 1:</b> 0100304096028048	<b>PCA Dose</b>	0.5 mg	1 mg	7 mg	10 mg					
	<b>Bar Code 2:</b> 0100300746028048	<b>Continuous Rate</b>	0.5 mg/hr	1 mg/hr	25 mg/hr	50 mg/hr					
	<b>Bar Code 3:</b>	<b>Dose Limit</b>			50 mg	100 mg					
	<b>Bar Code 4:</b>	<b>Time Interval</b>	1-hour								
	<b>Bar Code 5:</b>										

Library Name: Drug Library Infuser: LifeCare PCA 5.x/7.x Status: Worksheet Modified: May 09 2018 12:43PM Mode: Edit User: mednet\_admin

LifeCare PCA	
Medication Entries	Description
Generic Name	The generic name of the medication
Displayed Name	The medication name that displays on the infuser
Container Concentration	Concatenation (combination) of medication amount, medication unit, diluent amount, and diluent unit
Bar Code	The bar code(s) associated with the medication entry. Up to five bar codes are possible
Rule Set Groups	Dosing limits defined for the medication. Dosing limits can be defined for loading dose, continuous rate, PCA dose, and dose limit
LHL	Lower Hard Limit - the lower limit that cannot be overridden
LSL	Lower Soft Limit - the lower limit that can be overridden
USL	Upper Soft Limit - the upper limit that can be overridden
UHL	Upper Hard Limit - the upper limit that cannot be overridden
Time Interval	Period of time over which the Dose Limit is evaluated
Assigned CCAs	CCAs to which the drug is assigned
External ID	The ID number used to match an order to the medication entry in the drug library
Therapeutic Class	Therapeutic class assigned to the medication
Class ID	The ID for the therapeutic class

## LifeCare PCA Master Infuser & CCA Settings

This report displays detailed information on the LifeCare PCA master infuser and CCA settings.

Drug Library Management | Reports | CCA Setup | Master Infuser Setup | Protocols

Master Infuser & CCA Settings Print Save to File Close Help

Report Output

**Master Infuser Settings**

Nurse Call Relay Contacts	Auto-programming	Purge Capability	PCA Tone
Normally Open	Disabled	Enabled	Different Accept/Reject tones
History Format	Clock Format	Alarm Sounds	
1 & 24 hours	24-hour Clock	Alarm 1	

**CCA Settings**

CCA Name: Neonatal				Service Line: ICU - neonatal				
Minimum Lockout Interval: 5				Maximum Lockout Interval: 120				
No.	Protocol Name	Medication	Delivery Mode	PCA Dose	Continuous Rate	Lockout Interval	Dose Limit	Time Interval
No Protocols defined for this CCA								
CCA Name: ENT				Service Line: Ear Nose & Throat				
Minimum Lockout Interval: 5				Maximum Lockout Interval: 120				
No.	Protocol Name	Medication	Delivery Mode	PCA Dose	Continuous Rate	Lockout Interval	Dose Limit	Time Interval
No Protocols defined for this CCA								
CCA Name: 4 South				Service Line: Ambulatory				
Minimum Lockout Interval: 5				Maximum Lockout Interval: 120				
No.	Protocol Name	Medication	Delivery Mode	PCA Dose	Continuous Rate	Lockout Interval	Dose Limit	Time Interval
No Protocols defined for this CCA								

Library Name: User Guide PCA    Infuser: LifeCare PCA 5.x    Status: Worksheet    Modified: Jul 26 2013 01:45PM    Mode: Edit    User: mednet\_admin

<b>LifeCare PCA</b>	
<b>Field</b>	<b>Description</b>
<b>Master Infuser Settings</b>	
Nurse Call Relay Contacts	Open or closed
Auto-programming (Smart Pump Programming)	Enabled or disabled
Purge Capability	Enabled or disabled
PCA Tone	Status of acceptance and rejections tones
History Format	Formats available for CCA history
Clock Format	Clock format setting
Alarm Sounds	Alarm sounds settings
<b>CCA Settings</b>	
CCA Name	Name of CCA
Service Line	Name of service line
Minimum Lockout Interval	Minimum lockout interval for CCA
Maximum Lockout Interval	Maximum lockout interval for CCA
<b>Protocol</b>	
No.	Number of protocol
Protocol Name	Name of protocol
Medication	Name of medication
Delivery Mode	Delivery mode setting for CCA
PCA Dose	PCA Dose for amount of medication
Continuous Rate	Continuous dose rate per hour
Lockout Interval	Lockout interval setting
Dose Limit	Dose limit in mg or mcg
Time Interval	Time intervals for the Dose Limit

## LifeCare PCA Master Protocol

This report displays detailed information on each master protocol for the LifeCare PCA infuser.

Drug Library Management | Reports | CCA Setup | Master Infuser Setup | Protocols |

LifeCare PCA Master Protocol Print Save to File Close Help

Report Output:

Drug Library	Infuser Type	Date Finalized	Library State
User Guide PCA	LifeCare PCA 5.x	N/A	Worksheet

Master Protocol

No.	Protocol Name	Medication	Delivery Mode	PCA Dose	Continuous Rate	Lockout Interval	Dose Limit	Time Interval
1	Morphine PCA	Morphine (EXT_ID_072) 30 mg / 30 mL	PCA + Continuous	1 mg	1 mg/hr	15 minutes	20 mg	4-hours
2		Fentanyl (EXT_ID_046) 300 mcg / 30 mL	PCA + Continuous	10 mcg	12 mcg/hr	15 minutes		4-hours

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Library Name: User Guide PCA    Infuser: LifeCare PCA 5.x    Status: Worksheet    Modified: Jul 26 2013 03:43PM    Mode: Edit    User: mednet\_admin

LifeCare PCA	
Field	Description
Master Protocol	Details for each protocol in the library's Master Protocol List
No.	Number of protocol
Protocol Name	Name of protocol
Medication	Displayed name of medication
Delivery Mode	Delivery mode for each protocol
PCA Dose	PCA dose for each protocol
Continuous Rate	Continuous rate for each protocol in medication unit per hour format
Lockout Interval	Lockout interval for each protocol
Dose Limit	Dose limit for each protocol
Time Interval	Time interval for each protocol

# SapphirePlus Drug Library Reports

The following reports are available for the SapphirePlus infuser:

- Drug Library
- CCA Drug Library
- Master Infuser & CCA Settings

## SapphirePlus Drug Library

This report displays detailed information on all medications in the SapphirePlus Master Drug Formulary.

Drug Library	Infuser Type	Date Finalized	Library State
14.0	Sapphire 14.0x	N/A	Worksheet

Rule Set Groups	Dosing Unit	LHL	LSL	USL	UHL	Assigned CCAs
Generic Name: 0.9% Normal Saline		External ID: 437923749		Therapeutic Class:		Class ID:
Displayed Name: 0.9% Normal Saline		Concentration: __ nanog / __ mL		Bolus: Disabled		Maximum Bolus Amount:
Dose Rate Limits - Rate	mL/min					No
Bolus Limits - Amount						
Bolus Limits - Time						
Bolus Limits - Dose Rate						
Therapies: Basic (Continuous), Piggyback (Secondary), Multistep				Delivery at End of Infusion: KVO		Default Rate: 1 mL/hr

Drug Library	Infuser Type	Date Finalized	Library State
Sapphire 14.5	Sapphire 14.5x	N/A	Worksheet

Rule Set Groups	Dosing Unit	LHL	LSL	USL	UHL	Assigned CCAs
Generic Name: 0.45 NS + 20mEq KCL		External ID: 1234567888		Therapeutic Class:		Class ID:
Displayed Name: 0.45 NS + 20mEq		Concentration: 1000 mL		Bolus: Advanced		Maximum Dose Rate:      Maximum Bolus Amount:
Dose Rate Limits - Rate	mL/hr				999	Anesthesia, Cath Lab, Critical Care, Outpatient, SICU, Telemetry
Time Limits - Time						
Bolus Limits - Amount	mL					
Bolus Limits - Time						
Bolus Limits - Dose Rate	mL/hr				999	
Therapies: Basic (Continuous), Piggyback (Secondary), Multistep Minimum (kg): 0.1				Delivery at End of Infusion: KVO Maximum (kg): 500		Default Rate: 1 mL/hr Enable Automatic Patient Lockout: Disabled

<b>SapphirePlus</b>	
<b>Medication Entries</b>	<b>Description</b>
Displayed Name	The medication name that displays on the infuser
Concentration or Container Volume	Concatenation (combination) of medication amount, medication unit, diluent amount, and diluent unit
Rule Set Groups	The types of rule sets created for the medication: Dose Rate, and Bolus
Dosing Unit	The dosing unit selected for the medication
LHL	Lower Hard Limit (cannot be overridden)
LSL	Lower Soft Limit - the lower limit that can be overridden
USL	Upper Soft Limit - the upper limit that can be overridden
UHL	Upper Hard Limit (cannot be overridden)
Other Settings	Includes Dose Rate Limits, Time Limits (SapphirePlus 14.5 only), Enable Bolus (or Disabled), Bolus Units, Bolus Limits, and Maximum Bolus Amount
Assigned CCAs	CCAs to which the drug is assigned
Generic Name	The generic name of the medication
External ID	The ID number used to match an order to the medication entry in the drug library
Therapeutic Class	Therapeutic class assigned to the medication
Class ID	The ID for the therapeutic class
Therapies	Basic (Continuous), Piggyback (Secondary), Multistep
Delivery at End of Infusion (SapphirePlus 14.0 and 14.5)	Delivery at end of Infusion setting for each medication. Default KVO rate (mL/hr)
Minimum and Maximum (SapphirePlus 14.5 only)	Weight range for patients
Enable Automatic Patient Lockout (SapphirePlus 14.5 only)	Prevents patient from accessing infuser settings



# SapphirePlus CCA Drug Library

This report provides information on all medication entries assigned to a specific CCA.

Drug Library Management | Reports | CCA Setup | Master Infuser Setup

CCA Drug Library | Sapphire 14.0x | Print | Save to File | Close | Help

Report Output

First Previous Next Last

Rule Set Groups	Dosing Unit	LHL	LSL	USL	UHL	Assigned CCAs
<b>Generic Name:</b> Heparin Sodium (Porcine)		<b>External ID:</b> 8310002020		<b>Therapeutic Class:</b> HEPARINS		<b>Class ID:</b> 20120416
<b>Displayed Name:</b> Heparin		<b>Concentration:</b> 25000 units / 250 mL		<b>Bolus:</b> Advanced		<b>Maximum Bolus Amount:</b>
Dose Rate Limits - Rate	units/hr				1200	Anesthesia, Cath Lab, Critical Care, SICU, Telemetry
Bolus Limits - Amount	units					
Bolus Limits - Time						
Bolus Limits - Dose Rate	units/hr					
<b>Therapies:</b> Basic (Continuous), Piggyback (Secondary), Multistep				<b>Delivery at End of Infusion:</b> Continue Rate		
<b>Generic Name:</b> Ibutilide Fumarate		<b>External ID:</b> 3540005010		<b>Therapeutic Class:</b> CLASS III ANTIARRHYT		<b>Class ID:</b> 24040420
<b>Displayed Name:</b> Ibutilide		<b>Concentration:</b> 1 mg / 60 mL		<b>Bolus:</b> Disabled		<b>Maximum Bolus Amount:</b>

Drug Library Management | Reports | CCA Setup | Master Infuser Setup

CCA Drug Library | Print | Save to File | Close | Help

Report Output

Next Last

Drug Library	Infuser Type	Date Finalized	Library State
Sapphire 14.5	Sapphire 14.5x	N/A	Worksheet

Rule Set Groups	Dosing Unit	LHL	LSL	USL	UHL	Assigned CCAs
<b>CCA Name:</b> SICU						
<b>Generic Name:</b> 0.45 NS + 20mEq KCL		<b>External ID:</b> 1234567888		<b>Therapeutic Class:</b>		<b>Class ID:</b>
<b>Displayed Name:</b> 0.45 NS + 20mEq		<b>Concentration:</b> 1000 mL		<b>Bolus:</b> Advanced		<b>Maximum Dose Rate:</b> <b>Maximum Bolus Amount:</b>
Dose Rate Limits - Rate	mL/hr				999	Anesthesia, Cath Lab, Critical Care, Outpatient, SICU, Telemetry
Time Limits - Time						
Bolus Limits - Amount	mL					
Bolus Limits - Time						
Bolus Limits - Dose Rate	mL/hr				999	
<b>Therapies:</b> Basic (Continuous), Piggyback (Secondary), Multistep <b>Minimum (kg):</b> 0.1				<b>Delivery at End of Infusion:</b> KVO <b>Maximum (kg):</b> 500		<b>Default Rate:</b> 1 mL/hr <b>Enable Automatic Patient Lockout:</b> Disabled
<b>Generic Name:</b> 0.45% Normal Saline		<b>External ID:</b> 1234567890		<b>Therapeutic Class:</b>		<b>Class ID:</b>
<b>Displayed Name:</b> 0.45% Normal Sa		<b>Concentration:</b> 1000 mL		<b>Bolus:</b> Advanced		<b>Maximum Dose Rate:</b> <b>Maximum Bolus Amount:</b>
Dose Rate Limits - Rate	mL/hr				999	
Time Limits - Time						

Library Name: Sapphire 14.5      Infuser: Sapphire 14.5x      Status: Worksheet      Modified: Apr 04 2017 04:46PM      Mode: Edit      User: clax

<b>SapphirePlus</b>	
<b>Medication Entries</b>	<b>Description</b>
Displayed Name	The medication name that displays on the infuser
Concentration or Container Volume	Concatenation (combination) of medication amount, medication unit, diluent amount, and diluent unit
Rule Set Groups	The types of rule sets created for the medication: Dose Rate, and Bolus
Dosing Unit	The dosing unit selected for the medication
LHL	Lower Hard Limit (cannot be overridden)
LSL	Lower Soft Limit - the lower limit that can be overridden
USL	Upper Soft Limit - the upper limit that can be overridden
UHL	Upper Hard Limit (cannot be overridden)
Other Settings	Includes Dose Rate Limits, Time Limits (SapphirePlus 14.5 only), Enable Bolus, Bolus Units, Bolus Limits, and Maximum Bolus Amount
Assigned CCAs	CCAs to which the drug is assigned
Generic Name	The generic name of the medication
External ID	The ID number used to match an order to the medication entry in the drug library
Therapeutic Class	Therapeutic class assigned to the medication entry
Class ID	The ID number for the therapeutic class
Therapies	Basic (Continuous), Piggyback (Secondary), Multistep
Delivery at End of Infusion (SapphirePlus 14.0 and 14.5)	Delivery at end of infusion setting for each medication. Default KVO rate (mL/hr)
Minimum and Maximum (SapphirePlus 14.5 only)	Weight range for patients
Enable Automatic Patient Lockout (SapphirePlus 14.5 only)	Prevents patient from accessing infuser settings

## SapphirePlus Master Infuser & CCA Settings (14.0 and 14.5)

This report displays detailed information on all SapphirePlus Master Infuser and active CCA settings.

Drug Library Management Reports CCA Setup Master Infuser Setup

Master Infuser & CCA Settings

Print Save to File Close Help

Report Output

[Next](#) [Last](#)

Drug Library	Infuser Type	Date Finalized	Library State
Sapphire 14.0 sample	Sapphire 14.0x	N/A	Worksheet

**Master Infuser Settings**

Device - Level Passwords		
Device - Level Passwords	High Level Password	Set
	Preprogram Password	Set
Reduced Access Passwords	Medium Level Password	Set
	Low Level Password	Set

Infuser Settings		
Infuser Settings	Enable New Patient	Yes
	Enable US Format	Yes

[Next](#) [Last](#) Page 1 of 16

CCA Name: SICU		Service Line: ICU - surgical
<b>Alarm Settings</b>	<b>Item</b>	<b>Value</b>
Distal Occlusion Pressure	Default Settings	6 psi
	Default Level	Minimum
Air In Line	Single Bubble Size	500 mL
	Accumulated - Bubble Size	200 mL
	Accumulated - Threshold	Off
Occlusion Pressure Auto-Restart		Enabled
<b>Far View</b>	<b>Item</b>	<b>Value</b>
Enable Screen Saver(Far View)		Enabled
<b>Other Infuser Parameters</b>	<b>Item</b>	<b>Value</b>
Delivery Modes	Continuous	Enabled
	Multistep	Enabled
Other Settings	Delayed Start and Standby	Enabled
	Prime Reminder	Disabled
	Allow Secondary	Enabled
	Allow Repeat Last Infusion	Enabled
	Allow Preprogram	Disabled
	Calculate Concentration	Enabled
Enable Automatic Patient Lockout	Disabled	
Bolus (General) Default Level	Bolus (General) Default Level	Advanced
	Bolus (General) Rate	999 mL/hr
Prime Volume	Prime Volume	20 mL
Other	Maximum Volumetric Rate	999 mL/hr
	Nearing End of Infusion Alarm	1 minute
Primary Hard Limits	Primary Maximum VTBI	9999 mL
Secondary Hard Limits	Secondary Maximum VTBI	9999 mL
Multistep Hard Limits	Multistep Maximum VTBI	9999 mL
	Multistep Maximum Time	24 : 00 (hh:mm)
Brightness	Default Level	On
Inactivity Callback	Callback Alarm	5 minutes
Key Press Volume	Default Level	Minimum

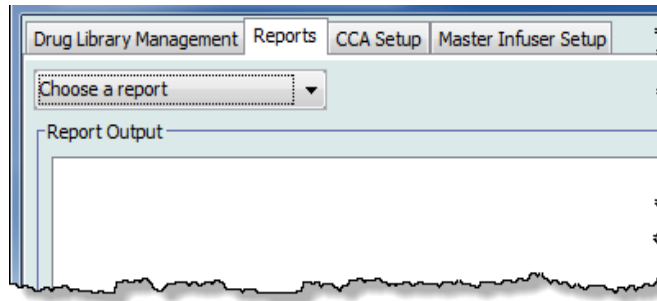
<b>SapphirePlus 14.0 and 14.5</b>	
<b>Field</b>	<b>Description</b>
Device-level Passwords	Device High Level password and Preprogram password settings The default value is "Set." "Set" indicates that the value has been set in the master infuser setup. The passcode is not displayed
Reduced Access Passwords	Medium and Low Level passwords The default value is "Set." "Set" indicates that the value has been set in the master infuser setup. The passcode is not displayed
Infuser Settings	Enable New Patient. Default value: Yes Enable US Format (for date and time). Default value: Yes
Date/Time (SapphirePlus 14.5 only)	Clock format as selected in Master Infuser Settings Date Format as selected in Master Infuser Settings
<b>Next Page Detail<sup>1</sup></b>	
CCA Name	Name of CCA
Service Line	Name of service line
Patient Limits (SapphirePlus 14.5 only)	Minimum and maximum Patient Weight
Distal Occlusion Pressure	Default and maximum setting
Alarm Volume	Default level
Air In Line	Single Bubble Size, Accumulated Bubble Size, Accumulated Threshold default levels
Occlusion Pressure Auto-Restart	Default: Enabled
Far View Display (SapphirePlus 14.5 only)	Enable Screen Saver Dose, Rate, Volume Infused, Volume to be Infused, Time remaining and Rotation interval (seconds)
Delivery Modes	Continuous and Multistep
Other Settings	Delayed start and standby, prime reminder, allow secondary, allow preprogram calculate concentration, enable automatic patient lockout. For SapphirePlus 14.0 only: Enable screen saver (Far View) and allow repeat last infusion.
Delivery at End of Infusion (General)	Delivery at End of Infusion (KVO or none), and default KVO rate, if KVO was selected. (General applies to No Drug Selected only)

<b>SapphirePlus 14.0 and 14.5</b>	
<b>Field</b>	<b>Description</b>
Bolus (General) Default Level	Bolus Default level and rate for No Drug Selected
Prime Volume	Default level
Other	Maximum volumetric rate, and nearing end of infusion alarm
Primary Hard Limits	Maximum VTBI default level
Secondary Hard Limits	Maximum VTBI default level
Multistep Hard Limits	Maximum VTBI default level, and maximum Time default
Brightness	Default level
Inactivity Callback	Callback alarm after a period of inactivity
Key Press Volume	Default level
<sup>1</sup> Begins on page two and contains information for each CCA	

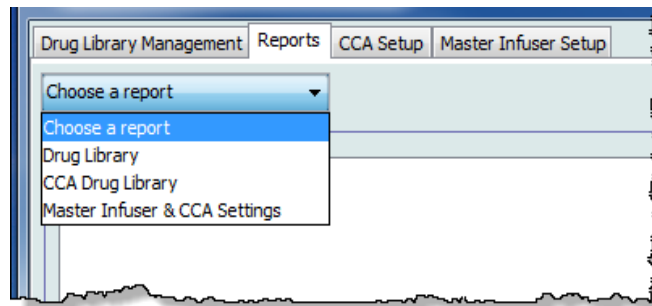
# Printing Reports

To print a report:

1. Click the **Reports** tab.



2. Select the report to print from the drop-down list.



The report displays.

3. Click **Print**.



The Print menu displays. Make your selection.

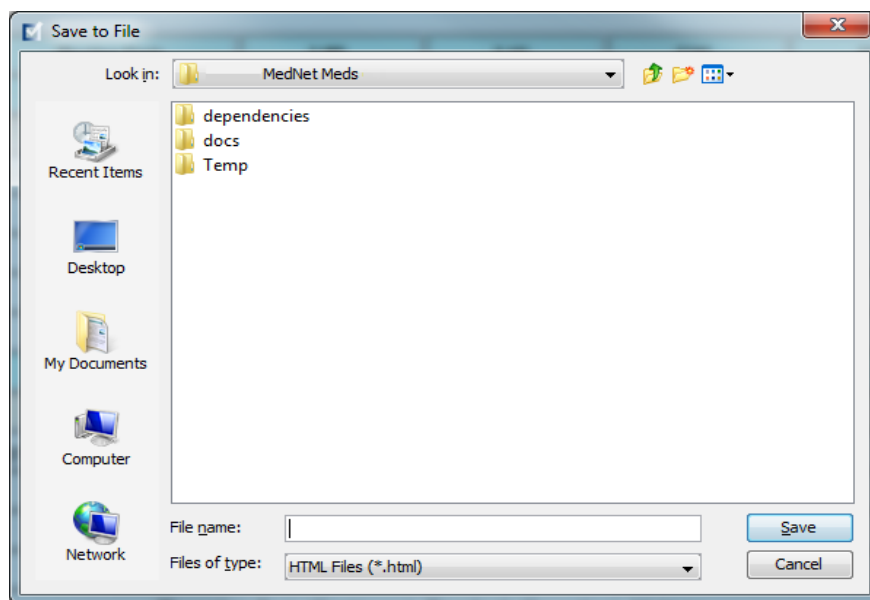
4. Click **Print**.

## To Save a Report

1. Select a report that you want to save.
2. Click **Save to File**.



3. Navigate to a location of your choice.



4. Type in a File name.
5. Click **Save** and the report will be saved in .html format.

## Notes:



# Chapter 8: Setting Up CCAs

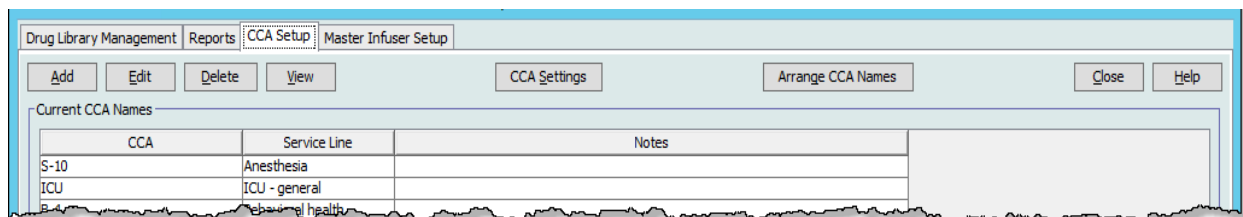
## Overview

Before you can assign medication entries to a clinical care area (CCA), you need to add a CCA to your Worksheet. Use the CCA Setup view to add a CCA to the Worksheet. You can create a maximum of 18 CCAs for the Plum A+ infuser, and 18 CCAs for the LifeCare PCA. ICU Medical MedNet Meds also supports SapphirePlus, and the Plum 360 that can each accommodate up to 40 CCAs. (See the ICU Medical MedNet Software Device Compatibility Matrix to determine the availability of the Plum version. The matrix is available through the Technical Support Center.)

The CCA Setup view allows you to:

- Create a new CCA and assign a Service Line to it
- Make changes to an existing CCA name and Service Line
- Remove an existing CCA
- View CCA names and Service Lines
- Arrange the order in which the CCA names display on the infuser
- Set up CCA-specific infuser settings

To display the CCA Setup view, open a Worksheet for editing and click the **CCA Setup** tab. (For instructions on opening a Worksheet, see [Chapter 5: The Library Directory](#) on page 35.)



**Note:** If you try to add a medication to a CCA that already has the maximum allowable medication entries, you will receive an error message. You will need to delete a medication from the CCA then add a new medication to the CCA in the Drug Library Management window.

## Service Lines

Service Lines are used in reports to aggregate data across multiple CCAs or facilities. Each CCA is mapped to a Service Line. For example, a service line called **Surgical - adult** may be used to examine data from the CCAs Four West, Five North, and Five East in a single hospital.

The following Service Lines are available for use.

---

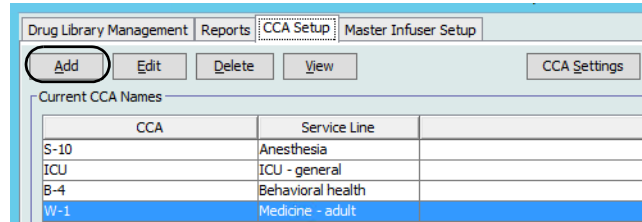
**Note:** You cannot edit or change the contents of the Service Line list.

---

- Ambulatory
- Anesthesia
- Behavioral health
- Bone marrow transplant
- Burn unit
- Ear, Nose & Throat
- Emergency services
- Endocrinology
- Eye
- Geriatric
- Hematology
- ICU - cardiac
- ICU - general
- ICU - medical
- ICU - neonatal
- ICU - pediatrics
- ICU - surgical
- Labor & Delivery
- Medicine - adult
- Medicine - neonatal
- Medicine - pediatric
- Multiple service line
- Obstetrics/gynecology
- Oncology - adult
- Oncology - pediatric
- Orthopedics
- Other specialty
- Outpatient Surgery
- Pain Management
- Rehabilitation
- Renal
- Short Stay
- Skilled nursing
- Special Procedures
- Surgical - adult
- Surgical - cardiovascular
- Surgical - pediatric
- Telemetry
- Transfusion Center
- Transplant
- Trauma
- Urology

## Create a New CCA

1. Click the **CCA Setup** tab.
2. Click **Add**.



3. Enter the name of the new CCA.

**Note:** Displayed Names and CCA Names do not allow either commas (,) or double-quotes ("). An underscore (\_) cannot be used in SapphirePlus CCA names. The number of characters allowed in a CCA name varies for each type of infuser; Plum maximum: 29; LifeCare PCA maximum: 16; and SapphirePlus maximum 15. You cannot exceed the maximum characters.

The screenshot shows a dialog box titled 'Add CCA Name and Notes'. It contains a text field for 'CCA Name', a dropdown menu for 'Service Line' with 'Select' as the current option, and a checkbox labeled 'Exclude from clinical reports'. Below these is a large text area for 'Notes'. At the bottom of the dialog are three buttons: 'Save & Add Another', 'Save & Close', and 'Cancel'.

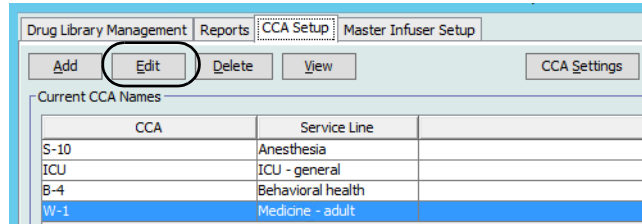
4. Select a Service Line for your CCA from the drop-down list.
5. To exclude the CCA from the reports, place a check mark in the box next to **Exclude from clinical reports**.

**Note:** Clinical reports include all reports except Asset Tracker, Asset Utilization, Event/Alarm Log, Infuser Status, and Software Download.

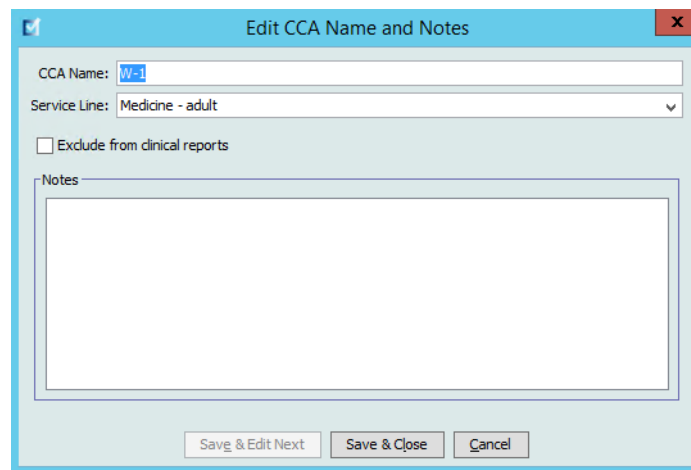
6. Enter a Note if desired.
7. Click **Save & Add Another** or **Save & Close**.

## Edit a CCA

1. Click the **CCA Setup** tab.
2. Select the CCA you want to change.



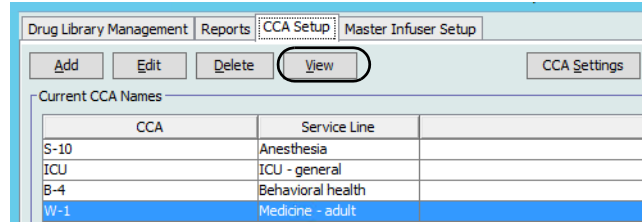
3. Click **Edit**.
4. Edit the CCA Name, Service Line, and Notes if desired.



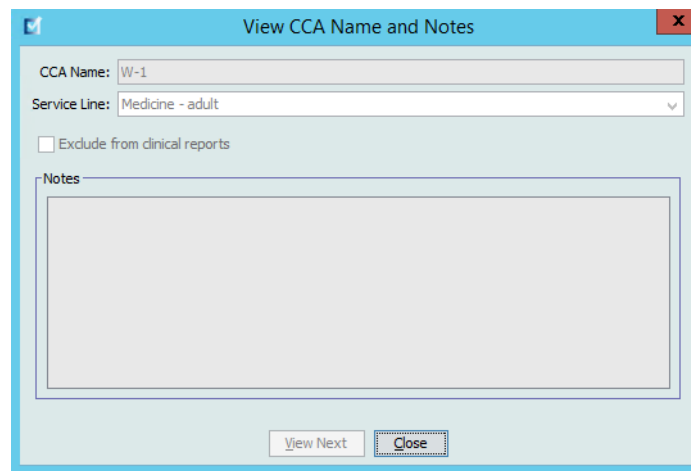
5. Click **Save & Edit Next** or **Save & Close**.

## View a CCA

1. Click the **CCA Setup** tab.
2. Select the CCA you want to view.

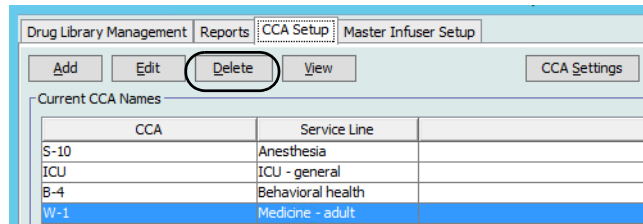


3. Click **View**.
4. When you are finished viewing, click **View Next** or **Close**.

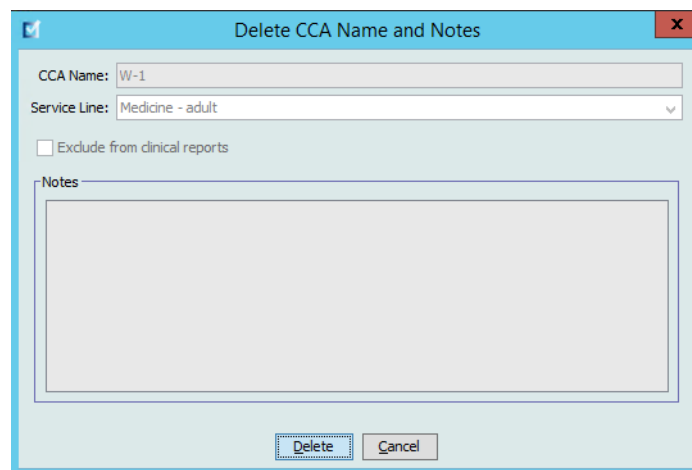


## Delete a CCA

1. Click the **CCA Setup** tab.
2. Select the CCA you want to delete.



3. Click **Delete**.
4. A pop-up window appears to confirm the deletion.
5. Click **Delete**.



The CCA is permanently deleted from the Worksheet.

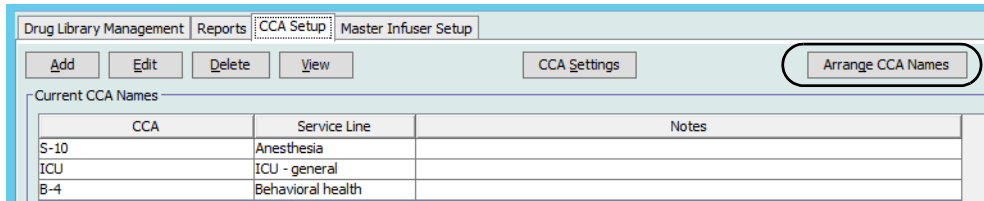
---

**Note:** Medication entries assigned to the deleted CCA will remain in the Master Drug Formulary and any other CCAs to which they were assigned.

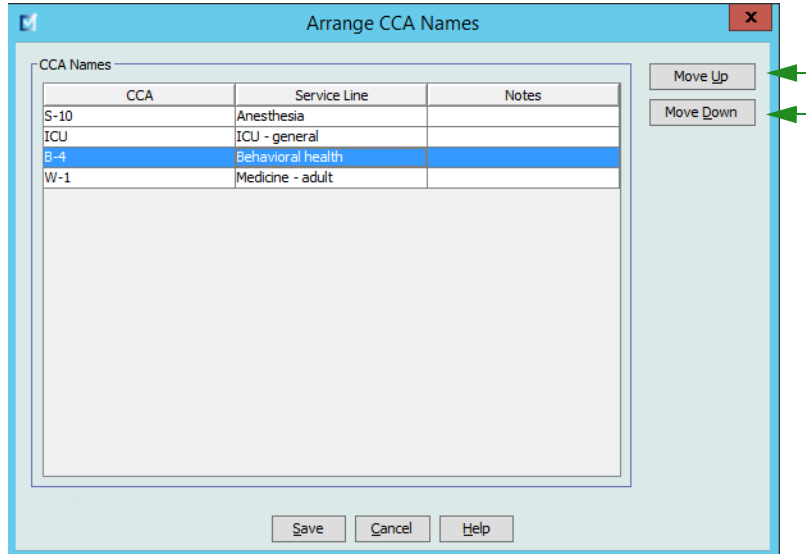
---

## Change the Display Order of CCA Names

1. Click the **CCA Setup** tab.



2. Click **Arrange CCA Names**.
3. Select the CCA names you want to move.
4. Click **Move Up** and **Move Down** to reorder the list as desired.
5. Click **Save** when you are satisfied with the display order.



**Helpful Hint:** You may select multiple CCAs by selecting the first CCA you want to move, and then holding the shift key while clicking the last CCA you want to move.

## Setting Up a Plum 360

---

**Note:** Only users with the appropriate login privileges are able to edit CCA infuser settings.

---

Each CCA is associated with specific infuser settings. For Plum 360 infusers that can support 40 CCAs, the following settings are supported: Patient Limits consisting of minimum and maximum body surface area (BSA); minimum and maximum patient height and weight; Alarm Settings for the default occlusion pressure; and Other Infuser Parameters relating to start and standby, and dose rates.

---

**Note:** The CCA settings apply to all medications in the CCA.

---

The **Body Surface Area** setting allows you to set a minimum to maximum range for the specific CCA.

The **Minimum Patient Height** setting allows you to set the minimum patient height allowed in the CCA.

The **Maximum Patient Height** setting allows you to set the maximum patient height allowed in the CCA.

The **Minimum Patient Weight** setting allows you to set the minimum patient weight allowed in the CCA.

The **Maximum Patient Weight** setting allows you to set the maximum patient weight allowed in the CCA.

The **Default Occlusion Pressure** setting allows you to select the pressure at which the infuser will sound the distal occlusion alarm. This setting is used as the default setting for the selected CCA and can be changed when programming the infuser.

The **Distal Occlusion Pressure Auto-Reset** setting allows you to set the number of times the infuser will resume an infusion automatically if a distal occlusion is cleared within 60 seconds of detection. If you leave the Auto-Reset at zero, the default setting, occlusion alarms will not be automatically reset.

The **Delayed Start** setting allows you to select this option in the CCA and in turn allows that option for the infuser.

The **Standby** setting allows you to select this option in the CCA and in turn allows that option for the infuser.

The **Maximum Dose Rate** is the maximum delivery rate allowed in the CCA.

---

**Note:** The Minimum Patient Weight, Maximum Patient Weight, and Maximum Dose Rate cannot be changed by the clinician when programming the infuser.

---



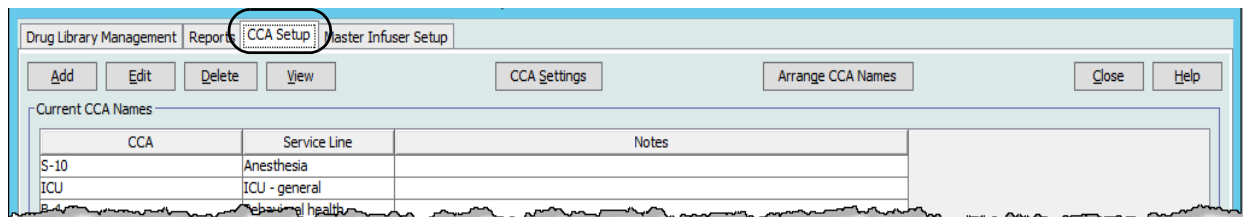
Following are the default CCA infuser settings:

<b>Minimum BSA</b>	<b>0.012 (m<sup>2</sup>)</b>
<b>Maximum BSA</b>	<b>7.07 (m<sup>2</sup>)</b>
<b>Minimum Patient Height</b>	<b>7.5 cm</b>
<b>Maximum Patient Height</b>	<b>305 cm</b>
<b>Minimum Patient Weight</b>	<b>0.1 kg</b>
<b>Maximum Patient Weight</b>	<b>500 kg</b>
<b>Default Occlusion Pressure</b>	<b>6 psi (310 mmHg)</b>
<b>Distal Occlusion Pressure Auto-Reset</b>	<b>0</b>
<b>Maximum Dose Rate</b>	<b>999 mL/hr</b>
<b>Delayed Start</b>	<b>Enabled</b>
<b>Standby</b>	<b>Enabled</b>

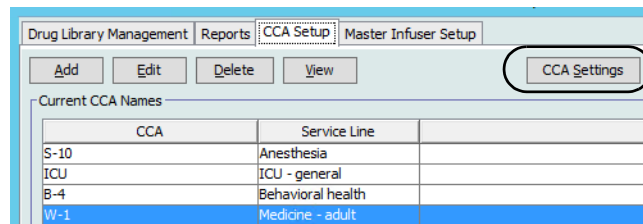
**Note:** When you create a new CCA, it contains the default infuser settings until you change them.

### To set up CCA settings:

1. Display the CCA Setup view by opening a Worksheet for editing and clicking the **CCA Setup** tab (for instructions on opening a Worksheet, see [Chapter 5: The Library Directory](#) on page 35).



2. Select a CCA from the CCA setup view.



3. Click the **CCA Settings** button.

4. Select the **Patient Limits** tab and edit the following information:

- **Minimum BSA** (0.012 to 7.07)
- **Maximum BSA** (0.012 to 7.07)
- **Minimum Patient Height** (7.5 to 305 cm)
- **Maximum Patient Height** (7.5 to 305 cm)
- **Minimum Patient Weight** (0.1 to 500 kg)
- **Maximum Patient Weight** (0.1 to 500 kg)

The screenshot shows the 'CCA Settings' dialog box for 'CCA: W-1'. The 'Patient Limits' tab is selected. It contains three sections for setting minimum and maximum values:

- BSA (m<sup>2</sup>):** Minimum: 0.012 [0.012 - 7.07], Maximum: 7.07 [0.012 - 7.07]
- Patient Height (cm):** Minimum: 7.5 [7.5 - 305], Maximum: 305 [7.5 - 305]
- Patient Weight (kg):** Minimum: 0.1 [0.1 - 500], Maximum: 500 [0.1 - 500]

At the bottom of the dialog, there is a 'Restore Default Values' button and four action buttons: 'Save & Continue', 'Save & Close', 'Cancel', and 'Help'.

5. Select the **Alarm Settings** tab and edit the following information:

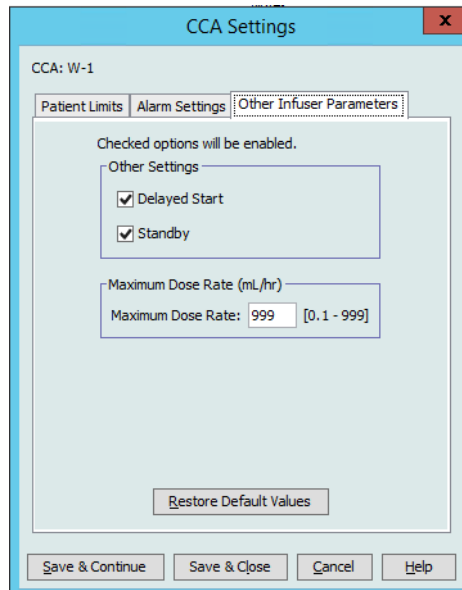
- **Distal Occlusion Pressure** (1 psi to 15 psi or 52 mmHg to 776 mmHg)
- **Distal Occlusion Auto-Reset** (0 to 10)

The screenshot shows the 'CCA Settings' dialog box for 'CCA: W-1'. The 'Alarm Settings' tab is selected. It contains two sections for setting alarm parameters:

- Distal Occlusion Pressure (psi):** Default Setting: 6 [1 - 15]
- Distal Occlusion Pressure Auto-Reset:** This is the number of times the infuser will resume infusion automatically if a distal occlusion is cleared within 60 seconds of detection. If Auto-Reset is zero, occlusion alarms will not be automatically reset. Distal Occlusion Auto-Reset: 0 [0 - 10]

At the bottom of the dialog, there is a 'Restore Default Values' button and four action buttons: 'Save & Continue', 'Save & Close', 'Cancel', and 'Help'.

6. Select the **Other Infuser Parameters** tab.



7. Select to allow the **Delayed Start** and **Standby** settings (recommended).
8. Edit the **Maximum Dose Rate**.
9. Click **Save & Continue** or **Save & Close**.

## Setting Up a Plum A+ CCA

**Note:** Only users with the appropriate log in privileges are able to edit CCA infuser settings.

Each CCA is associated with specific infuser settings. These settings include: the default occlusion pressure, minimum and maximum patient weight, and maximum dose rate settings.

**Note:** The CCA settings apply to all medications in the CCA.

The **Default Occlusion Pressure** setting allows you to select the pressure at which the infuser will sound the distal occlusion alarm. This setting is used as the default setting for the selected CCA and can be changed when programming the infuser.

The **Minimum Patient Weight** setting allows you to set the minimum patient weight allowed in the CCA.

The **Maximum Patient Weight** setting allows you to set the maximum patient weight allowed in the CCA.

The **Maximum Dose Rate** is the maximum delivery rate allowed in the CCA.

**Note:** The Minimum Patient Weight, Maximum Patient Weight, and Maximum Dose Rate cannot be changed by the clinician when programming the infuser.

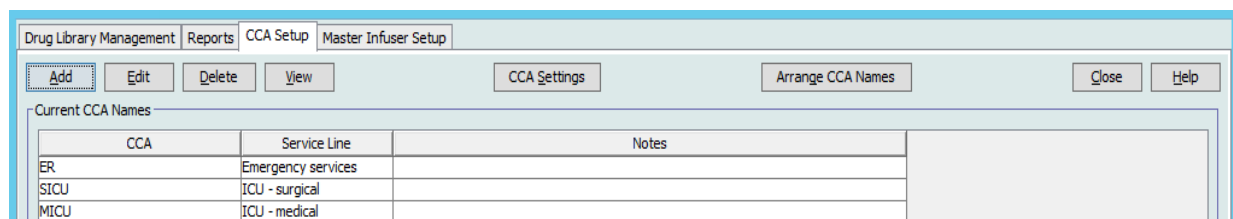
Following are the default CCA infuser settings:

<b>Default Occlusion Pressure</b>	<b>6 psi (310 mmHg)</b>
<b>Minimum Patient Weight</b>	<b>0.1 kg</b>
<b>Maximum Patient Weight</b>	<b>500 kg</b>
<b>Maximum Dose Rate</b>	<b>999 mL/hr</b>

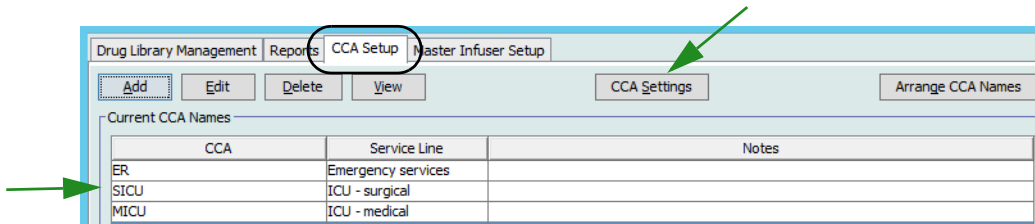
**Note:** When you create a new CCA, it contains the default infuser settings until you change them.

### To set up the Plum A+ CCA settings:

1. Display the CCA Setup view by opening a Worksheet for editing and clicking the **CCA Setup** tab (for instructions on opening a Worksheet, see [Chapter 5: The Library Directory](#) on page 35).



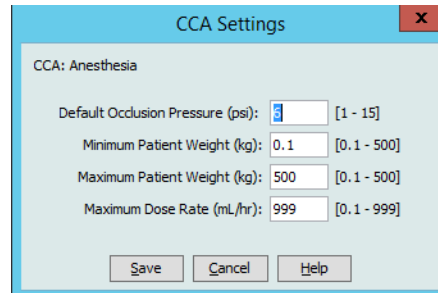
2. Select a CCA from the CCA setup view.



3. Click the **CCA Settings** button.
4. Edit the following information:
  - **Default Occlusion Pressure** (1 psi to 15 psi or 52 to 776 mmHg). The Default Occlusion Pressure is the threshold for the distal occlusion alarm.

**Note:** If your institution uses Plum A+ HB Hyperbaric infusers (version 13.5), refer to the infuser's System Operating Manual for this model's expanded default occlusion pressure range. The clinician is able to set the default occlusion pressure value while programming the infuser for hyperbaric use.

- **Minimum Patient Weight** (0.1 to 500 kg)
- **Maximum Patient Weight** (0.1 to 500 kg)
- **Maximum Dose Rate** (0.1 to 999 mL/hr)



5. Click **Save** to save the settings in the selected CCA.

## Setting Up a LifeCare PCA CCA

**Note:** Only users with the appropriate login privileges are able to edit CCA infuser settings.

The only CCA-specific infuser setting for the LifeCare PCA is the Lockout Interval. The lockout interval allows you to define the minimum and maximum lockout period between PCA doses. The interval you set will apply to all medication entries in the CCA.

The default values for the LifeCare PCA are:

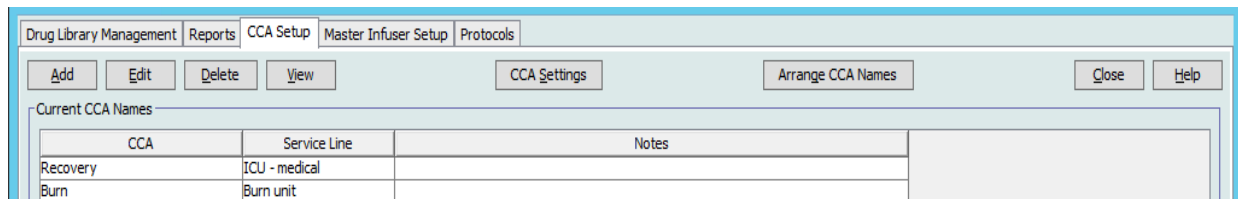
- Minimum Default Lockout Interval (5 minutes)
- Maximum Default Lockout Interval (120 minutes)

**Note:** When you create a new CCA, it contains the default infuser settings until you change them.

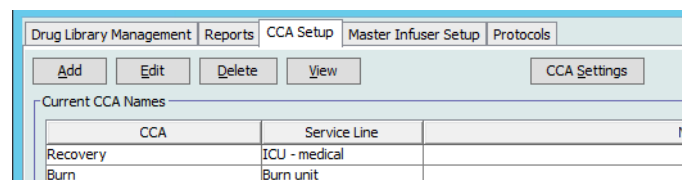
**Note:** The limits on the lockout interval cannot be changed when programming the infuser.

### To set up the LifeCare PCA CCA:

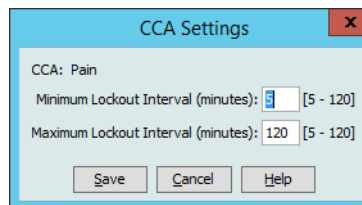
1. Display the CCA Setup view by opening a Worksheet for editing and clicking the **CCA Setup** tab (for instructions on opening a Worksheet, see [Chapter 5: The Library Directory](#) on page 35).



2. Select a CCA from the **CCA Setup** view.



3. Click the **CCA Settings** button.



4. Edit the minimum and maximum lockout intervals (5–120 minutes) on the pop-up.
5. Click **Save**.

## Setting Up a SapphirePlus CCA

**Note:** Only users with the appropriate login privileges are able to edit CCA infuser settings.

Each CCA is associated with specific infuser settings, including alarm capabilities for distal occlusion and air-in-line. Infuser parameters can also be set such as delivery at end of infusion.

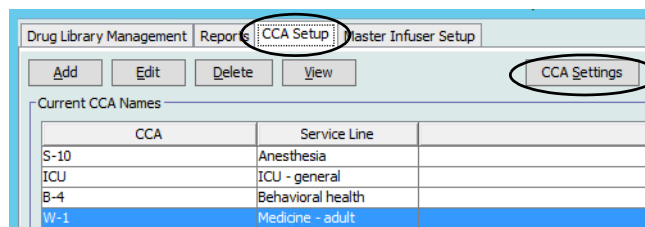
**Note:** The CCA settings apply to all medications in the CCA.

The default CCA infuser settings are: Alarm Settings, Far View, and Other Infuser Parameters. When you create a CCA, the default settings are displayed. The SapphirePlus 14.5 also has settings for Patient Limits (Patient Weight).

**Note:** Settings with the term “default” before them in the above list can be changed on the infuser by the clinician programming the device, or an authorized technician. To see all functions that can be adjusted on the infuser, refer to the SapphirePlus operating manual.

### To set up the SapphirePlus CCA:

1. Display the CCA Setup view by opening a Worksheet for editing and clicking the CCA Setup tab (for instructions on opening a Worksheet, see [Chapter 5: The Library Directory](#) on page 35).
2. Select a CCA from the **CCA Setup** view.
3. Click the **CCA Settings** button.



CCA settings for the SapphirePlus 14.0 infuser are arranged in three tabs:

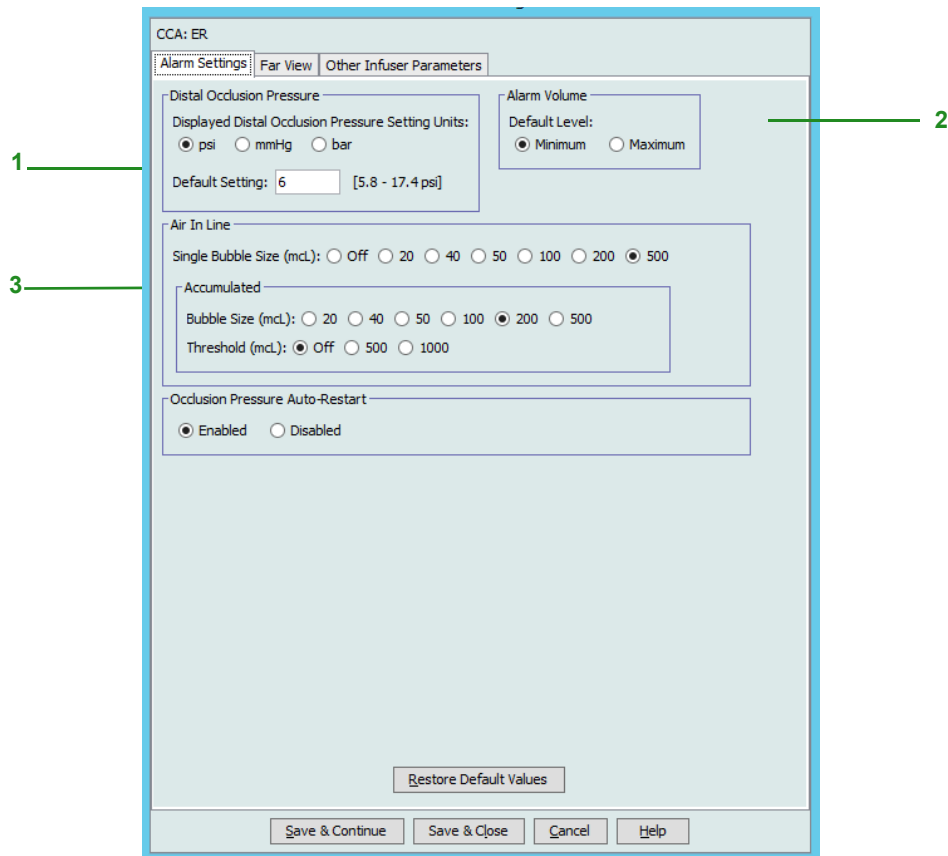
- Alarm Settings
- Far View
- Other Infuser Parameters

CCA settings for the SapphirePlus 14.5 infuser are arranged in four tabs:

- Patient Limits
- Alarm Settings
- Far View
- Other Infuser Parameters

## SapphirePlus 14.0

### Alarm Settings



1. For **Distal Occlusion Pressure**, do the following:
  - Select the default setting units (psi, mmHg, or bar)
  - Select a default setting from the drop-down list (psi can be in 0.5 psi increments with a range of 5.8 - 17.4; mmHg can be in 25 mmHg increments with a range of 300 - 900; bar can be in 0.1 increments with a range of 0.4 - 1.2).
2. Select a default setting for the **Alarm Volume**, either Minimum or Maximum.
3. For **Air-in-line**, select **Single Bubble Size** and **Accumulated** (Bubble Size and/ or Threshold).
  - Single Bubble Size: The minimum bubble size to alarm for a single bubble
  - Accumulated Bubble Size: the size of the bubble that when detected will be added to the accumulated threshold. Only bubbles from the selected size and above will be added to the threshold.
  - Accumulated Threshold: The threshold from which the pump will alarm. Only bubbles from the selected size and above will be added to the threshold.

---

**Note:** Single Bubble Size and Accumulated Threshold cannot be both OFF. At least one of the selections must be ON. An accumulated air-in-line alarm can only occur if enough air is accumulated over a 15-minute period.

---



**Examples:**

With the following selected:

Single bubble = 500 mcL

Accumulated Bubble Size = 100 mcL

Accumulated Threshold = 500 mcL

- a. A single bubble of 500 mcL is detected. An air-in-line alarm is generated.
- b. A bubble of 50 mcL is detected, no alarm would be generated as it is not equal to or greater than the configured Single Bubble Size.

Additionally, nothing would be added to the Accumulated Threshold since the bubble size is less than the selected 100 mcL.

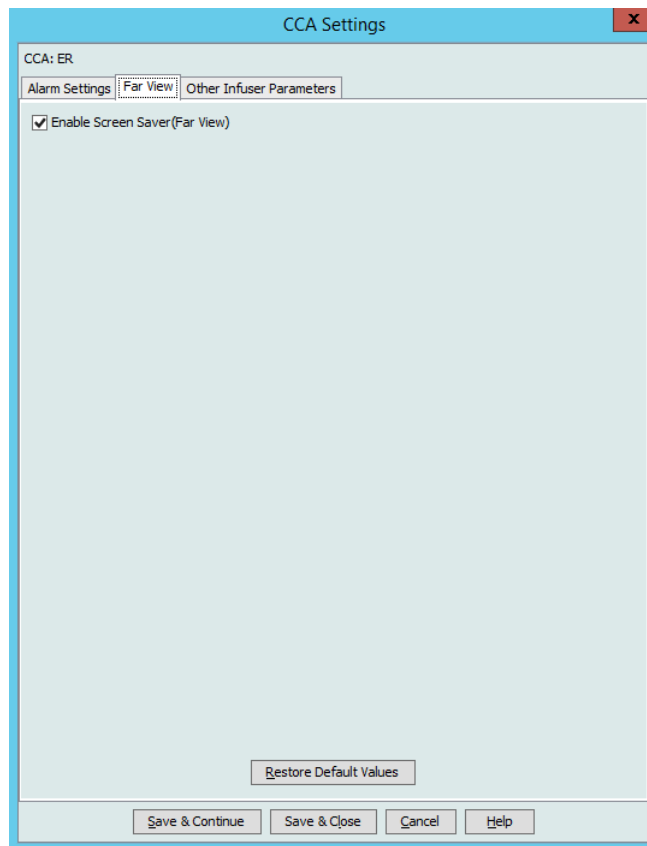
- c. A bubble of 100 mcL is detected, this would not generate an alarm since the bubble size is less than 500 mcL. However, 100 mcL would be added to the Accumulated Threshold.
  - d. A bubble size of 400 mcL is detected. This would not trigger a Single Bubble Size alarm since it is less than the 500 mcL bubble size selected. However, since the bubble is greater than the selected Accumulated Bubble Size of 100 mcL, it would be added to the Threshold which would then total 500 mcL (the bubble size of 400 mcL + the selected 100 mcL). This would trigger an alarm since it met the Accumulated Threshold setting of 500 mcL.
4. You can select **Occlusion Pressure Auto-Restart** to be either the default **Enabled** or **Disabled**. If you select **Enabled**, the infusion will resume once the occlusion is cleared.



5. Click **Save & Continue** or **Save & Close**.
6. If continuing, select the **Far View** tab.

## Far View

When checked, allows **Enable Screen Saver (Far View)** to be displayed.



For additional CCA settings, select the **Other Infuser Parameters** tab.

## Other Infuser Parameters

1. At **Delivery Modes**, select **Continuous** and/or **Multistep**. You must select at least one.
2. At **Other Settings**, select any or all of the following:
  - **Delayed Start and Standby**
  - **Prime Reminder**
  - **Allow Secondary**. Allows a secondary infusion.
  - **Allow Repeat Last Infusion**. To enable repeating an infusion using identical same settings.
  - **Allow Pre-Program**
  - **Calculate Concentration**
  - **Enable Automatic Patient Lockout**. This setting prevents patient access to settings.
3. At **Delivery at End of Infusion (General)**, either select **None/Stop**, **Continue Rate**, or **KVO**. The Default KVO Rate is between 0.1 and 20 mL/hr. The selection made will represent the default settings for that CCA when there is no drug selected. This setting does not affect rule sets.
4. At **Bolus (General)**, select the Default Level of either **Off**, **Simple** or **Advanced**. This default applies only when there is no drug selected and does not affect the rule sets. The rate can be set between 1 - 999 mL/hr with a default of 125 mL/hr.
5. At **Prime Volume**, allow the default of 20 mL or select from 2 - 25 mL.

---

**6. At Other:**

- a. Enter a **Maximum Volumetric Rate** can be selected from 0.1 - 999 mL/hr or leave the default at 999.
- b. From the drop-down list select the time interval to alert the user that an infusion is nearly complete. Choices are **Off, 1 minute, 3 minutes, 5 minutes and 10 minutes**.

---

**Note:** For a multistep infusion, the **Nearing End of Infusion Alarm** occurs x minutes before treatment ends (if x = 10 and there are 7 steps of 5 minutes each, the message will appear after 25 minutes).

For a continuous/secondary infusion, the **Nearing End of Infusion Alarm** occurs x minutes before the primary and secondary will be ended (if x = 10 and primary is 1 minute and secondary is 30 minutes the message will appear after 21 minutes).

---

7. At **Primary Hard Limits**, set **Maximum VTBI** from 1-9999 mL or leave the default at 9999.
8. At **Secondary Hard Limits**, set **Maximum VTBI** from 1-9999 mL or leave the default at 9999.
9. At **Multistep Hard Limits**, set **Maximum VTBI** from 1-9999 mL or leave the default at 9999. Select the **Maximum Time** from the 24-hour clock. The default is 24:00.
10. At **Brightness**, select the brightness level for the infuser from **On, Partial** or **Off**.
11. At **Inactivity Callback (Pump Unattended)**, set the Callback Alarm at **2 minutes, 5 minutes** or **10 minutes**.
12. Select the default **Key Press Volume** level.

---

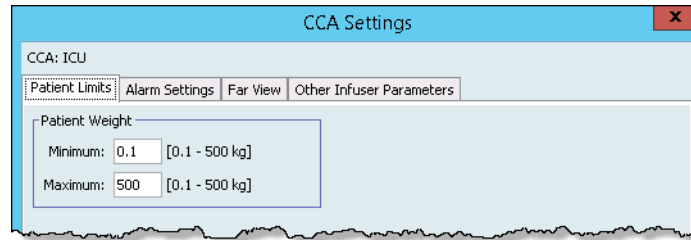
**Note:** You can **Restore Default Values** by clicking on that button.

---

13. Click **Save & Close**.

## SapphirePlus 14.5

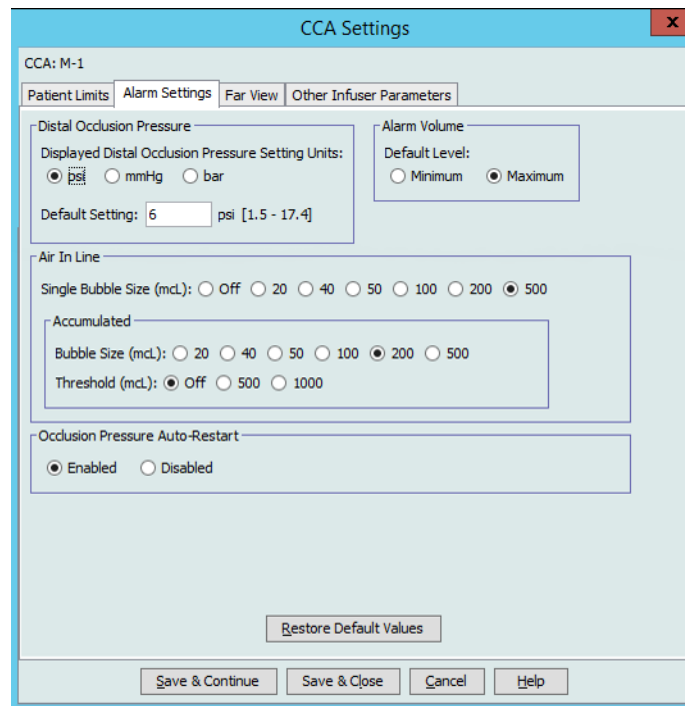
### Patient Limits



Select the Patient Weight:

- Minimum range 0.1-500 kg (0.1 kg is the default)
- Maximum range 0.1 - 500 kg (500 kg is the default)

### Alarm Settings



1. For **Distal Occlusion Pressure**, do the following
  - Select the default setting units (psi, mmHg, or bar).
  - Type in a default setting (psi can be in 0.1 psi increments with a range of 1.5-17.4; mmHg can be in 1 mmHg increments with a range of 75 - 900; bar can be in 0.1 bar increments with a range of 0.1 - 1.2).
2. Select a default setting for the **Alarm Volume**, either Minimum or Maximum.

3. For **Air-in-line**, select **Single Bubble Size** and **Accumulated** (Bubble Size and/ or Threshold).
  - Single Bubble Size: The minimum bubble size to alarm for a single bubble
  - Accumulated Bubble Size: the size of the bubble that when detected will be added to the accumulated threshold. Only bubbles from the selected size and above will be added to the threshold
  - Accumulated Threshold: The threshold from which the pump will alarm. Only bubbles from the selected size and above will be added to the threshold.

---

**Note:** Single Bubble Size and Accumulated Threshold cannot be both OFF. At least one of the selections must be ON. An accumulated air-in-line alarm can only occur if enough air is accumulated over a 15-minute period.

---

### Examples:

With the following selected:

Single bubble = 500 mcL

Accumulated Bubble Size = 100 mcL

Accumulated Threshold = 500 mcL

- a. A single bubble of 500 mcL is detected. An air-in-line alarm is generated.
- b. A bubble of 50 mcL is detected, no alarm would be generated as it is not equal to or greater than the configured Single Bubble Size.

Additionally, nothing would be added to the Accumulated Threshold since the bubble size is less than the selected 100 mcL.

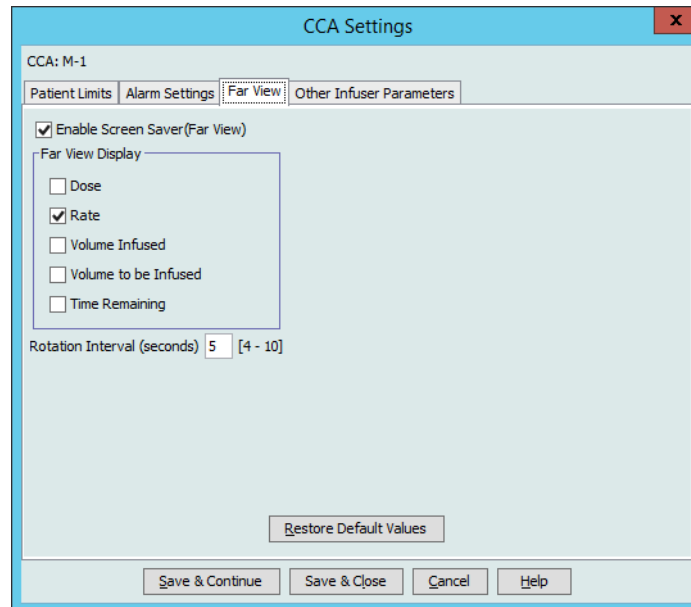
- c. A bubble of 100 mcL is detected, this would not generate an alarm since the bubble size is less than 500 mcL. However, 100 mcL would be added to the Accumulated Threshold.
  - d. A bubble size of 400 mcL is detected. This would not trigger a Single Bubble Size alarm since it is less than the 500 mcL bubble size selected. However, since the bubble is greater than the selected Accumulated Bubble Size of 100 mcL, it would be added to the Threshold which would then total 500 mcL (the bubble size of 400 mcL + the selected 100 mcL). This would trigger an alarm since it met the Accumulated Threshold setting of 500 mcL.
4. You can select **Occlusion Pressure Auto-Restart** to be either the default **Enabled** or **Disabled**. If you select **Enabled**, the infusion will resume once the occlusion is cleared.



5. Click **Save & Continue** or **Save & Close**.
6. If continuing, select the **Far View** or **Other Infuser Parameters** tab.

## Far View

When **Enable Screen Saver (Far View)** is checked, the display choices become available.



You can select any or all of the following from the Far View Display:

- Dose
- Rate
- Volume Infused
- Volume to be Infused
- Time Remaining

At **Rotation Interval (seconds)**, you can select from 4 to 10 seconds, representing the interval at which your selection(s) will display. The default is 5 seconds.

## Other Infuser Parameters

The screenshot shows the 'CCA Settings' dialog box with the 'Other Infuser Parameters' tab selected. The settings are as follows:

- Delivery Modes:**  Continuous,  Multistep
- Other Settings:**  Delayed Start and Standby,  Prime Reminder,  Allow Secondary,  Allow Pre-Program,  Calculate Concentration,  Enable Automatic Patient Lockout
- Delivery at End of Infusion (General):**  None/Stop,  Continue Rate,  KVO. Default KVO Rate: 1 [0.1 - 20 mL/hr]
- Bolus (General):** Default Level:  Off,  Simple,  Advanced. Rate: 125 [0.1 - 999 mL/hr]
- Prime Volume:** 20 [2 - 25 mL]
- Other:** Maximum Volumetric Rate: 999 [0.1 - 999 mL/hr], Nearing End of Infusion Alarm: Off
- Primary Hard Limits:** Maximum VTBI: 9999 [1 - 9999 mL]
- Secondary Hard Limits:** Maximum VTBI: 9999 [1 - 9999 mL]
- Multistep Hard Limits:** Maximum VTBI: 9999 [1 - 9999 mL], Maximum Time: 24 : 00 [00:01 - 24:00 hh:mm]
- Brightness:** Default Level:  On,  Partial,  Off
- Inactivity Callback (Pump Unattended):** Callback Alarm: 2 minutes
- Key Press Volume:** Default Level:  Off,  Minimum,  Maximum

Buttons at the bottom: Save & Continue, Save & Close, Cancel, Help, and a Restore Default Values button.

1. At **Delivery Modes**, select **Continuous** and/or **Multistep**. You must select at least one.
2. At **Other Settings**, select any or all of the following:
  - **Delayed Start and Standby**
  - **Prime Reminder**
  - **Allow Secondary**. Allows a secondary infusion.
  - **Allow Pre-Program**
  - **Calculate Concentration**
  - **Enable Automatic Patient Lockout**. This setting prevents patient access to settings.

**Important:** The **Delayed Start and Standby** functions are not available when initially starting an auto program; however, the Standby function will become available once an auto program has been started. See the SapphirePlus 14.5 user manual for complete information.

The **Delayed Start and Standby** options in the CCA settings must be enabled in order to be available during manual programming and, in the case of Standby, available once an auto program has been started.



3. At **Delivery at End of Infusion (General)**, either select **None/Stop**, **Continue Rate**, or **KVO**. The Default KVO Rate is between 0.1 and 20 mL/hr. The selection made will represent the default settings for that CCA when there is no drug selected. This setting does not affect rule sets.
4. At **Bolus (General)**, select the Default Level of either **Off**, **Simple** or **Advanced**. This default applies only when there is no drug selected and does not affect the rule sets. The rate can be set between 1 - 999 mL/hr with a default of 125 mL/hr.
5. At **Prime Volume**, allow the default of 20 mL or select from 2 - 25 mL.
6. At **Other**:
  - a. Enter a **Maximum Volumetric Rate** can be selected from 0.1 - 999 mL/hr or leave the default at 999.
  - b. From the drop-down list at **Nearing End of Infusion Alarm**: select the time interval to alert that an infusion is nearly complete. Choices are **Off**, **1 minute**, **3 minutes**, **5 minutes**, **10 minutes**, or **30 minutes**.

---

**Note:** For a multistep infusion, the **Nearing End of Infusion Alarm** occurs x minutes before treatment ends (if x = 10 and there are 7 steps of 5 minutes each, the message will appear after 25 minutes).

For a continuous/secondary infusion, the **Nearing End of Infusion Alarm** occurs x minutes before the primary and secondary will be ended (if x = 10 and primary is 1 minute and secondary is 30 minutes the message will appear after 21 minutes).

---

7. At **Primary Hard Limits**, set **Maximum VTBI** from 1-9999 mL or leave the default at 9999.
8. At **Secondary Hard Limits**, set **Maximum VTBI** from 1-9999 mL or leave the default at 9999.
9. At **Multistep Hard Limits**, set **Maximum VTBI** from 1-9999 mL or leave the default at 9999. Select the **Maximum Time** from the 24-hour clock. The default is 24:00.
10. At **Brightness**, select the brightness level for the infuser from **On**, **Partial** or **Off**.
11. At **Inactivity Callback (Pump Unattended)**, set the Callback Alarm at **30 seconds**, **2 minutes**, **5 minutes**, or **10 minutes**.
12. Select the default **Key Press Volume** level.

---

**Note:** You can **Restore Default Values** by clicking on that button.

---

13. Click **Save & Close**.

## Notes:

# Chapter 9: Plum A+, and Plum 360 Medication Entries

## Overview

In this chapter, you will learn how to define clinical decision rules for medications in the Plum A+ and Plum 360 drug libraries. ICU Medical MedNet Meds software enables you to customize dose limits for medications used in drug libraries. You can customize clinical decision rules for up to the maximum number of clinical care areas (CCAs) in the hospital, and 150 (Plum A+) or 400 medication entries (Plum 360) in each CCA, depending on your licensing.

Medication entries can be created with one of three types of rule sets, described below.

- **Full Rule Set:** Medication entries configured with a medication name, a complete or partial concentration, a specific dosing unit, and corresponding dose rate limits.
- **Limited Rule Set:** Medication entries configured with a medication name, optional diluent volume, and rate limits.
- **Label Only Rule Set:** A Label Only rule set allows the clinician to see the medication name displayed on the infuser. There are no dosing limits associated with this rule set.

The display of the medication in the Drug List and the programming sequence for the clinician on the infuser will vary depending on the type of rule set defined in the drug library.

---

**Note:** The Clinical Use field (Plum 360 only) is an optional field and can be left blank. The default value of Clinical Use can be updated in the Master Infuser Setup.

---

# Part 1: Plum 360

## Defining Rule Sets

### Full Rule Set

A Full rule set allows you to enter a complete concentration (for example, 250 mg/500 mL) or partial concentration (for example, 250 mg/\_ mL, \_mg/500 mL or, \_mg/\_ mL). Creating a medication entry for the standard concentrations of any medication reduces the number of programming steps on the infuser for the clinician. At least one dosing limit value **must** be entered for each Full rule set.

Leaving the medication or diluent amounts blank allows the clinician to enter a non-standard concentration at the time of programming. Full rule sets defined with a partial concentration will require the clinician to enter the concentration values when the dosing units are not mL/hr. When the dosing units are mL/hr, you do not have to enter concentration information.

## Limited Rule Set

A Limited rule set does not require a concentration to be defined. At least one dosing limit value must be entered for each Limited rule set. The Container Volume field is optional. When programming the infuser for a medication with a Limited rule set, the clinician enters only the rate, volume to be infused (VTBI), and duration.

Source List: Add Rule Set

**Medication and Concentration**

Generic Name (External ID) (Strength / Volume) (Dosage Form):  
 DOPAMINE (1044) (200 MG / 5 ML) {VIAL} Select

Displayed Name: DOPAMINE Therapeutic Class: BETA-ADRENERGIC AGONISTS1 Class ID: 12:12.08

Summary: DOPAMINE \_\_ mL for Clinical Use " \_\_ " Dosed in mL/hr

Rule Sets: Limited

Container Volume: mL

Piggyback delivery allowed  
 Allow piggyback to interrupt this infusion

Clinical Use (optional)

If the Clinical Use is blank, it will be updated with the value in the Default Clinical Use from the Master Infuser Setup.

Enable Bolus

Dose Limits

Dosing Unit: mL/hr LHL: 1 LSL: USL: UHL:

Save & Add Another Dosing Unit Save & Add Another Rule Set Save & Close Cancel Help

## Label Only Rule Set

A Label Only rule set allows the clinician to see the medication name displayed on the infuser. There are no dosing limits associated with a Label Only rule set. The clinician selects the dosing units during programming. If the dosing units are not mL/hr, the clinician also enters the concentration values.

Source List: Add Rule Set

**Medication and Concentration**

Generic Name (External ID) (Strength / Volume) (Dosage Form):  
 DOPAMINE (1044) (200 MG / 5 ML) {VIAL} Select

Displayed Name: DOPAMINE Therapeutic Class: BETA-ADRENERGIC AGONISTS1 Class ID: 12:12.08

Summary: DOPAMINE

Rule Sets: Label Only

Piggyback delivery allowed  
 Allow piggyback to interrupt this infusion

Enable Bolus

Save & Add Another Dosing Unit Save & Add Another Rule Set Save & Close Cancel Help

Each type of rule set will create a different display for the medication in the Drug List on the infuser.

You can create medication entries by adding them to the Master Drug Formulary or by adding them directly to a CCA. Medication entries added to a CCA are automatically added to the Master Drug Formulary.

Within a CCA, no two medication entries may have exactly the same External ID and Concentration. Also, no two medication entries may have exactly the same Displayed Name and Concentration.

Within a CCA, a medication entry with a Displayed Name and a Concentration can have up to four Clinical Uses. Each Clinical Use can have up to four dosing units or a total of 16 possible dosing units for one medication in one CCA.

In the Master Drug Formulary, two medication entries may have the same display name, medication amount, medication unit, diluent amount, and dosing units, as long as one or more of the following limits are different:

- Lower soft limit (LSL)
- Lower hard limit (LHL)
- Upper soft limit (USL)
- Upper hard limit (UHL)

## Setting Dose Rate Limits

ICU Medical MedNet Meds allows you to define dose rate limits for both primary and secondary infusions. It is important that you understand how the dose rate limits function so please read this section carefully.

You can define upper and lower soft and hard limits as part of the rule set for each medication entry that you create in the library. As you configure the limits, the software enforces the following rule:

$$\text{Lower Hard Limit (LHL)} < \text{Lower Soft Limit (LSL)} \leq \text{Upper Soft Limit (USL)} < \text{Upper Hard Limit (UHL)}$$

### Soft Limits

*Soft Limits* are dose rate limits that can be overridden when programming the infuser. When a value entered on the infuser is lower than the lower soft limit or higher than the upper soft limit, the infuser displays a soft limit override confirmation message. The infuser records soft limit alerts and the user's response to the alert in its history logs.

For example, if the upper soft limit is set to 15 mL/hr and the clinician enters 16 mL/hr, the infuser will display a soft limit override alert. This alert notifies the clinician that the entry is outside the range of the soft limits set for that medication entry. The clinician can choose to continue programming using the override, or cancel the override and edit the value. Both the override and edit events are recorded separately in the infuser's history log.

---

## Hard Limits

*Hard limits* are dose rate limits that cannot be overridden; the infuser cannot be programmed with a rate that is lower than the lower hard limit or higher than the upper hard limit.

---

**Note:** The actual patient weight is not entered until the clinician programs the infuser. Therefore, ICU Medical MedNet Meds software cannot verify the validity of a lower limit when entering a weight-based medication entry. The infuser performs the final check when the clinician programs the infuser.

---

## Bolus Limits (Plum 360 with Bolus)

*Bolus Limits* can be defined in three ways:

- **Pump Bolus Amount** allows you to define the pump bolus amount unit, set lower and upper limits, select the maximum bolus unit, and the maximum amount of medication that can be administered in a bolus.
- **Bolus Time Limits** allow you to define the time period over which a bolus can be administered. A minimum administration time for the bolus is defined as a lower limit, while a maximum administration time is defined as an upper limit.
- **Bolus Dose Rate Limits** allow you to define the rate at which a bolus can be administered.

---

**Note:** If defining Bolus Rules using weight-based or BSA-based units:  
The Bolus Dose Rate limits can be defined based on weight only if the Bolus Amount units are also based on weight.  
The Bolus Dose Rate limits can be defined based on BSA only if the Bolus Amount units are also based on BSA.

---

# Medication Entry Rules and Conventions

The ICU Medical MedNet Meds software uses the following conventions for Plum A+ medication entries:

- Full or Limited rule sets require at least one hard or soft limit.
- You can create medication entries by adding them to the Master Drug Formulary or by adding them directly to a CCA. Medication entries added to a CCA Target List are automatically added to the Master Drug Formulary List.
- “Validity” messages appear in red at the bottom of the Rule Set window. When you enter a value that is not allowed, the message specifies the defined range for the field, or the reason the value is not permitted.
- You cannot use the following characters in the medication name: comma (,), less than (<), greater than (>), single quotes (‘), double quotes (“), and ampersand (&).
- Once you select a medication unit, the dosing unit field will display only the enabled unit type.
- The software prohibits invalid numeric entries and signals such with an audible “beep.”
- You may use the vertical and horizontal scroll bars to navigate to an entry.
- If you do not select or populate a required field, an error message appears.
- When you highlight an entry on the Drug Library Management list view, buttons or features that are not allowed appear as “grayed” or disabled.
- When you add a new medication in the Generic Name field of the rule set window, you may search for a medication by typing the first few characters of its generic name. The drop-down list will navigate to show any matching medications.



# The Plum 360 Medication Rule Set

The Rule Set window shown here is used to configure a medication entry for the Plum 360 drug library.

**Source List: Add Rule Set**

**Medication and Concentration**

Generic Name (External ID) (Strength / Volume) (Dosage Form):  
 DOPamine HCl (3800002010) (40 mg / 5 mL) (Vial) Select

Displayed Name: DOPamine HCl Therapeutic Class: SELECTIVE BETA-1-ADR Class ID: 12120808

Summary: DOPamine HCl 200 mg / 5 mL for Clinical Use " " Dosed in mL/hr

Rule Sets: Full

Concentration

Medication Amount: 200 Medication Unit: mg Diluent Amount: mL: 5

Piggyback delivery allowed  
 Allow piggyback to interrupt this infusion

Clinical Use (optional)

If the Clinical Use is blank, it will be updated with the value in the Default Clinical Use from the Master Infuser Setup.

Dose Limits

Dosing Unit: mL/hr LHL: 1 LSL: USL: UHL:

Enable Bolus

Save & Add Another Dosing Unit Save & Add Another Rule Set Save & Close Cancel Help

## Plum 360 with Bolus Enabled

**Source List: Add Rule Set**

**Medication and Concentration**

Generic Name (External ID) (Strength / Volume) (Dosage Form):  
 Amiodarone HCl (3540000500) (50 mg / 3 mL) (Vial) Select

Displayed Name: Amiodarone HCl Therapeutic Class: CLASS III ANTIARRHYT Class ID: 24040420

Summary: Amiodarone HCl 50 mg / 2 mL for Clinical Use " " Dosed in mg

Rule Sets: Full

Concentration

Medication Amount: 50 Medication Unit: mg Diluent Amount: mL: 2

Piggyback delivery allowed  
 Allow piggyback to interrupt this infusion

Clinical Use (optional)

If the Clinical Use is blank, it will be updated with the value in the Default Clinical Use from the Master Infuser Setup.

Dose Limits

Dosing Unit: mg LHL: LSL: 1 USL: UHL:

Enable Bolus

Pump Bolus Amount

Pump Bolus Amount Unit: mg LHL: LSL: USL: 150 UHL:

Maximum Bolus Amount Unit: Maximum Bolus Amount:

Bolus Time Limits (hh:mm:ss): LHL: LSL: USL: UHL:

Bolus Dose Rate Limits: mg/min LHL: LSL: USL: 10 UHL:


Save & Add Another Dosing Unit Save & Add Another Rule Set Save & Close Cancel Help

## Rule Set Fields

The following table lists the fields, a brief description, and allowed value range for the infuser.

Each medication entry must have a generic name and a displayed name; you cannot save a medication entry without a name in these fields. The number of characters in the displayed name is determined by how it is displayed on the infuser’s screen. Depending on character width, the maximum number of characters allowed in a displayed name can vary from 17 to 29.

To avoid potential confusion when creating medication entries, use only the medication name in the **Displayed Name** field and ensure that the External ID is identical to the External ID used in your institution’s formulary. Do not include the diluent as part of the medication name.

Parameter	Description	Allowable Range
Generic Name	This is the medication name from your Medication List. It is selected from the drop-down list and displays the External ID (the hospital's identifier for a medication). Strength/Volume and Dosage Form display only if part of your Medication List.	Not editable in the Rule Set
Displayed Name	This is the name that will be displayed on the infuser.	<ul style="list-style-type: none"> <li>Varies depending on the character width</li> <li>Cannot be blank</li> </ul> <p><b>CAUTION:</b> You cannot use the following characters in the displayed name:   comma (,), less than (&lt;), greater than (&gt;), single quotation marks ('), inverted commas (“”), and ampersand (&amp;.)</p> <p><b>Note:</b> The display font changes on the Plum A+ infuser for lengthy displayed names.</p>
Therapeutic Class	The therapeutic class assigned to the medication entries.	Not editable in the Rule Set
Class ID	The ID number for the therapeutic class assigned to the medication entry.	Not editable in the Rule Set
Medication Amount	Allows you to enter the medication amount in the units selected.  The combination of medication amount, medication unit, and diluent amount creates the medication’s concentration.	For medication amounts in mcg, mg, grams, mEq, million units, or mmol: <ul style="list-style-type: none"> <li>0.1–9999 and “Blank”</li> </ul> For medication amounts in units: <ul style="list-style-type: none"> <li>0.1–99999999 and “Blank”</li> </ul>
Medication Unit	Allows you to select the unit of measure for your medication amount.	mcg, mg, grams, mEq, Million Units, mmol and units

Parameter	Description	Allowable Range
Diluent Amount	Allows you to set the diluent amount associated with the medication entry. The diluent amount will vary depending on the container size, overfill, and volume of added solution.	<ul style="list-style-type: none"> <li>• 0.1–9999 and “Blank”</li> </ul>
Piggyback delivery allowed	Allows you to enable a piggyback infusion.	Checked to enable or Unchecked (does not allow the functionality)
Allow piggyback to interrupt this infusion	Allows you to configure whether this medication can be interrupted by a piggyback infusion.	Checked to enable or Unchecked (does not allow the functionality)
Dosing Unit	Allows you to set the standard dosing unit for the medication. This will be the default value displayed on the infuser.	<p>For complete dosing units, please consult your infuser’s System Operating Manual</p> <p>For the Plum 360 15.1x only: Time Limits and Dose Rate limits are available for either time-based, or non time-based units</p>
LHL, LSL, USL, UHL	<p>Lower hard limit, lower soft limit, upper soft limit, upper hard limit.</p> <p>Allows you to set the upper and/or lower dose rate limits for the selected medication.</p>	The units for the soft and hard limits are the same as the dosing units selected in the medication rule set
Enable Bolus (Plum 360 with Bolus)	Pump Bolus Amount Units, and Bolus Dose Rate Units are dependent upon the selection of the medication unit.	The medication unit selected will determine the allowable bolus units that can be selected from the available fields’ drop-down list.
Refer to your infuser's System Operating Manual for complete details and allowable range.		

## Step-by-step Procedures

The following section provides step-by-step procedures that will enable you to create and manage medication entries. In this section you will learn how to do the following:

- Add a medication entry with a Full rule set in a CCA
- Add a medication entry with a Limited rule set in a CCA
- Add a medication entry with a Label Only rule set in a CCA
- Edit a medication entry in a CCA
- View a medication entry in a CCA
- Remove a medication entry from a CCA
- Add a medication entry with a Full rule set the Master Drug Formulary
- Add a medication entry with a Limited rule set to the Master Drug Formulary
- Add a Label Only medication entry to the Master Drug Formulary
- Edit a medication entry in the Master Drug Formulary
- View a medication entry in the Master Drug Formulary
- Delete a medication entry from the Master Drug Formulary
- Copy a medication entry from the Master Drug Formulary to a Target CCA

## Working with CCA Medication Entries (Plum 360)

**Note:** When adding medication entries to the Target List, both the selected CCA and the Master Drug Formulary are updated. When adding to the Source List, only the Master Drug Formulary is updated.

The maximum number of medication entries allowed in a CCA is 150-400 depending on your licensing.

In the Target List, the created medication entries are grouped by Displayed Name plus Concentration. If there is no grouping of medication entries with the same Displayed Name plus Concentration, the entry will go to the bottom of the list of medication entries.

Within the grouping there is a sorting

- Clinical Use with the Default setting of Clinical Use topping the series
- Each group in Alphabetical order
- Dosing units

### To add a medication entry with a Full rule set in a CCA:

- Select the desired CCA from the Target List drop-down list.

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Rule Set	▲ Clinical
No Drug Selected		No Drug Selected		Label Only	
HYDROMORPHONE	349	HYDROMORPHONE		Label Only	
CEFAZOLIN	1433	CEFAZOLIN	__ mg / __ mL	Full	NOT SPECI

- From the Target List, click **Add**.

### 3. Select the Generic Name of a medication.

**Note:** Selecting a generic name from the list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and **Class ID** fields.

The screenshot shows a software interface titled "Specify a Medication Entry". It features a table of "All Medications" with columns for Generic Name, Brand Name, External ID, Strength, Volume, and Dosage Form. A green arrow labeled "3" points to the row for "DOPAMINE". Below the table, the "Selected Medication" section displays the chosen medication's details: "DOPAMINE (1044) (200 MG / 5 ML) (VIAL)". It also shows the "Displayed Name" as "DOPAMINE", the "Therapeutic Class" as "BETA-ADRENERGIC AGONISTS\1", and the "Class ID" as "12:12.08".

Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form
DIPYRIDAMOLE	PERSANTINE (EQ)	1112	50 MG	10 ML	AMP
DIPYRIDAMOLE	PERSANTINE (EQ)	2456	5 MG	1 ML	**
DOBUTAMINE	DOBUTAMINE	1737	12.5 MG	1 ML	**
DOBUTAMINE	DOBUTAMINE	12	250 MG	20 ML	VIAL
DOBUTAMINE 500 MG-D5W	DOBUTAMINE 500 MG-D5W	1645		250 ML	IV BAG
DOCETAXEL	TAXOTERE	2338	10 MG	1 ML	**
<b>DOPAMINE</b>	<b>DOPAMINE</b>	<b>1044</b>	<b>200 MG</b>	<b>5 ML</b>	<b>VIAL</b>
DOPAMINE	DOPAMINE	1734	40 MG	1 ML	**
DOPAMINE 400 MG-D5W	DOPAMINE 400 MG-D5W	1640		250 ML	IV BAG
DOPAMINE 800 MG-D5W	DOPAMINE 800 MG-D5W	2186		250 ML	IV BAG

Selected Medication: **Generic Name (External ID) (Strength / Volume) (Dosage Form):**  
 DOPAMINE (1044) (200 MG / 5 ML) (VIAL)  
 Displayed Name: DOPAMINE    Therapeutic Class: BETA-ADRENERGIC AGONISTS\1    Class ID: 12:12.08  
 Rule Sets: Full

**Note:** If the desired generic name is not in the **Generic Name** list, you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

**Note:** The **Displayed Name** can be changed as desired; for example, to accommodate Tall Man lettering or another unique name. The maximum number of characters in a Displayed Name is determined by how it is displayed on the infuser screen. Depending on character width, the maximum number of characters allowed in a medication name can vary from 17 to 29.

4. Select **Full** (if not selected) from the **Rule Sets** drop-down list.
5. Enter a Medication Amount. Select a Medication Unit from the drop-down list and enter a Diluent Amount, if desired.
6. Place a check mark in the box next to Piggyback delivery allowed, if desired.
7. Place a check mark in the box next to Allow piggyback to interrupt this infusion, if desired.
8. Enter a Clinical Use, if desired.
9. Click **Next**.

Specify a Medication Entry

All Medications

Show generic names beginning with

Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form
DOBUTAMINE 500 MG-D5W	DOBUTAMINE 500 MG-D5W	1645	250 MG	250 ML	IV BAG
DOCETAXEL	TAXOTERE	2338	10 MG	1 ML	**
DOPAMINE (1044)	DOPAMINE	1044	200 MG	5 ML	VIAL
DOPAMINE	DOPAMINE	1734	40 MG	1 ML	**
DOPAMINE 400 MG-D5W	DOPAMINE 400 MG-D5W	1640		250 ML	IV BAG
DOPAMINE 800 MG-D5W	DOPAMINE 800 MG-D5W	2186		250 ML	IV BAG
DOXAPRAM	DOPRAM	3065	20 MG	1 ML	**
DOXAPRAM	DOPRAM	308	400 MG	20 ML	VIAL
DOXORUBICIN	ADRIAMYCIN (EQ)	2127	2 MG	1 ML	**

Selected Medication

Generic Name (External ID) (Strength / Volume) (Dosage Form):  
DOPAMINE (1044) (200 MG / 5 ML) (VIAL)

Displayed Name: DOPAMINE Therapeutic Class: BETA-ADRENERGIC AGONISTS\1 Class ID: 12:12.08

Rule Sets: Full

Concentration

Medication Amount: 200 Medication Unit: mg Diluent Amount: mL: 5

Piggyback delivery allowed

Allow piggyback to interrupt this infusion

Clinical Use (optional)

If the Clinical Use is blank, it will be updated with the value in the Default Clinical Use from the Master Infuser Setup.

Next Cancel Help

10. Select the dosing unit from the drop-down list and enter the values for soft and hard limits. (You must specify at least one limit.)

## For the Plum 360 15.1x only

When entering dosing unit, you will have the option of selecting time-based, or non-time based dosing units as follows:

### Time-based dosing unit:

If you select a dosing unit that is time-based, type the values for soft and hard limits. (You must specify at least one limit.) Time Limits and Dose Rate Limits fields will **not** be enabled at the same time and will be greyed out.

### Non time-based dosing unit:

The screenshot shows the 'Medication Entry' window with the following details:

- Generic Name:** Vancomycin (1600006012) (1000 mg / 250 mL) (Piggyback)
- Displayed Name:** Vancomycin
- Concentration:** Medication Amount: 1000, Medication Unit: mg, Diluent Amount: 250 mL
- Dosing Units and Limits:**
  - Summary: Vancomycin 1000 mg / 250 mL for Clinical Use " " Dosed in mL
  - Dosing Unit: mL
  - Time Limits (hhhh:mm): LHL: 0001:00, UHL: 250
  - Dose Rate Limits: Select (greyed out)

If you select a dosing unit that is non time-based, type the values for soft and hard limits. (You must specify at least one limit.)

The Time Limits fields and Dose Rate Limits become enabled. You will need to select either time limits or dose rate limits.

Time Limits is the default, using the format hhhh:mm with a maximum of 1500:00.

If you use Dose Rate Limits, use the drop-down to select a Dose Rate Unit and then specify at least one value for soft or hard limits.



11. Once you enter a value for Dosing Unit and dosing limit(s), you will be able to add three more dosing units, for a total of four dosing units for the selected medication entry with the same Displayed Name and Concentration.

You can add each selection by clicking the green plus “+” sign.

The screenshot shows a 'Target List: Add Rule Set' dialog box. The 'Medication Entry' section includes fields for Generic Name (DOPAMINE), Therapeutic Class (BETA-ADRENERGIC AGONISTS), and Class ID (12:12.08). The concentration is set to 200 mg / 5 mL. The 'Dosing Units and Limits' section shows a summary: 'Summary: DOPAMINE 200 mg / 5 mL for Clinical Use "\_\_\_" Dosed in mL/kg/day'. Below this, there are tabs for dosing units: (1) mL/hr, (2) mL/kg/min, (3) mL/kg/day, and a '+' sign. The (3) mL/kg/day tab is active and highlighted in red. A red error message is displayed: 'Please specify at least one dosing limit within the active tab.' A green arrow points to the '+' sign. At the bottom, there are buttons for 'Save & Add Another Rule Set', 'Save & Close', 'Cancel', and 'Help'.

**Note:** A tab with red text denotes either incomplete or invalid dosing unit and/or dosing limits.

12. Click **Save & Add Another Rule Set**, or **Save & Close** to add the medication entry to the CCA.

or

If you have a Bolus enabled infuser, you can place a tick mark next to **Enable Bolus** if you want to set bolus dose limits for this medication (Optional).

**For the Plum 360 with Bolus only:**

**Medication and Concentration**

**Generic Name** (External ID) (Strength / Volume) (Dosage Form):  
 Amiodarone HCl (3540000500) (50 mg / 3 mL) (Vial) Select

Displayed Name: Amiodarone HCl      Therapeutic Class: CLASS III ANTIARRHYT      Class ID: 24040420

**Summary: Amiodarone HCl 50 mg / 2 mL for Clinical Use "\_\_\_" Dosed in mg**

Rule Sets: Full ▼

Concentration

Medication Amount: 50      Medication Unit: mg      Diluent Amount: mL: 2

Piggyback delivery allowed  
 Allow piggyback to interrupt this infusion

Clinical Use (optional)  
  
 If the Clinical Use is blank, it will be updated with the value in the Default Clinical Use from the Master Infuser Setup.

Dose Limits

Dosing Unit: mg      LHL:      LSL:      USL: 1      UHL:

Enable Bolus

Pump Bolus Amount

Pump Bolus Amount Unit: mg      LHL:      LSL:      USL:      UHL: 150

Maximum Bolus Amount Unit:      Maximum Bolus Amount:

Bolus Time Limits (hh:mm):      LHL:      LSL:      USL:      UHL:

Bolus Dose Rate Limits: mg/min      LHL:      LSL:      USL:      UHL: 10

Save & Add Another Dosing Unit    Save & Add Another Rule Set    Save & Close    Cancel    Help

**To Set a Bolus:**

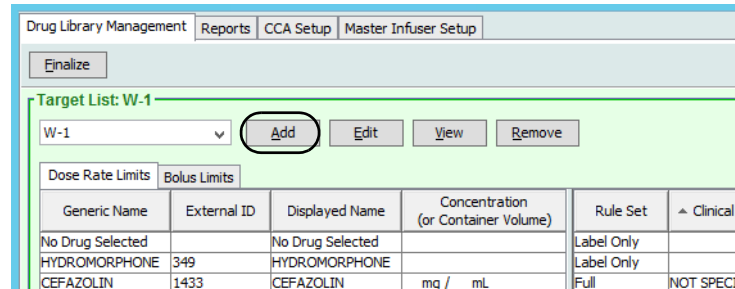
- Select the **Pump Bolus Amount Unit** from the drop-down list. (The allowable units are determined by the selection of Medication Unit.) Enter the desired values for Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit.

Enter **Maximum Bolus Amount** and **Unit** if desired. These fields are enabled when the Bolus Amount Limits Unit is weight-based or BSA-based.

- Enter the desired values for **Bolus Time Limits**: Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit.
- Select the Bolus Dose Rate Limits from the drop-down list and enter the desired values for Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit.
- Click **Save & Close**.

## To add a medication entry with a Limited rule set in a CCA:

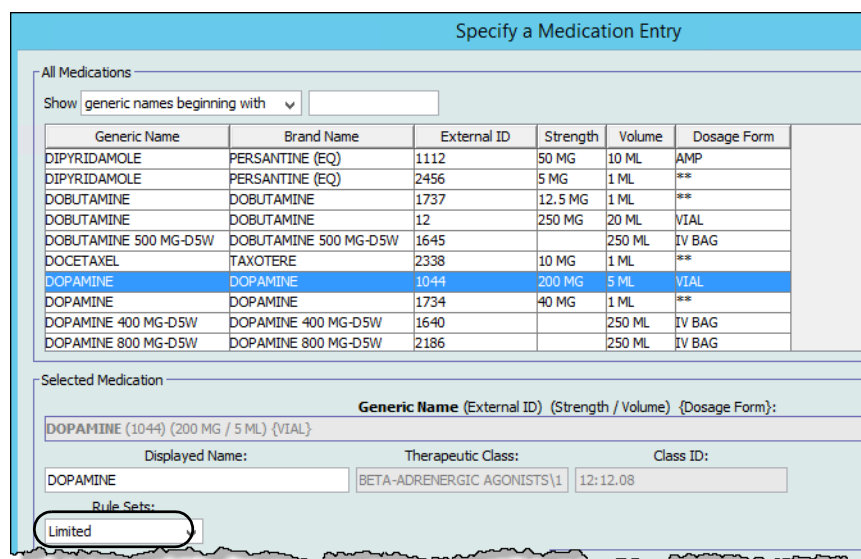
1. Select the desired CCA from the Target List drop-down list.
2. From the Target List, click **Add**.



Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Rule Set	▲ Clinical
No Drug Selected		No Drug Selected		Label Only	
HYDROMORPHONE	349	HYDROMORPHONE		Label Only	
CEFAZOLIN	1433	CEFAZOLIN	__mg / __mL	Full	NOT SPEC

3. Select the Generic Name of a medication.

**Note:** Selecting a generic name from the list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and **Class ID** fields.



Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form
DIPYRIDAMOLE	PERSANTINE (EQ)	1112	50 MG	10 ML	AMP
DIPYRIDAMOLE	PERSANTINE (EQ)	2456	5 MG	1 ML	**
DOBUTAMINE	DOBUTAMINE	1737	12.5 MG	1 ML	**
DOBUTAMINE	DOBUTAMINE	12	250 MG	20 ML	VIAL
DOBUTAMINE 500 MG-D5W	DOBUTAMINE 500 MG-D5W	1645		250 ML	IV BAG
DOCETAXEL	TAXOTERE	2338	10 MG	1 ML	**
DOPAMINE	DOPAMINE	1044	200 MG	5 ML	VIAL
DOPAMINE	DOPAMINE	1734	40 MG	1 ML	**
DOPAMINE 400 MG-D5W	DOPAMINE 400 MG-D5W	1640		250 ML	IV BAG
DOPAMINE 800 MG-D5W	DOPAMINE 800 MG-D5W	2186		250 ML	IV BAG

Selected Medication: **Generic Name (External ID) (Strength / Volume) (Dosage Form):**  
DOPAMINE (1044) (200 MG / 5 ML) {VIAL}

Displayed Name: DOPAMINE      Therapeutic Class: BETA-ADRENERGIC AGONISTS\1      Class ID: 12:12.08

Rule Sets: **Limited**

**Note:** If the desired generic name is not in the **Generic Name** list, you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

4. The **Displayed Name** can be changed as desired, for example, to accommodate Tall Man lettering or another unique name. The maximum number of characters in a Displayed Name is determined by how it is displayed on the infuser screen. Depending on character width, the maximum number of characters allowed in a medication name can vary from 17 to 29.
5. Select **Limited** (if not selected) from the **Rule Sets** drop-down list.

6. Enter Container Volume, if desired.
7. Place a check mark in the box next to Piggyback delivery allowed, if desired.
8. Place a check mark in the box next to Allow piggyback to interrupt this infusion, if desired.
9. Enter a Clinical Use, if desired.

**Specify a Medication Entry**

All Medications

Show generic names beginning with

Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form
DIPYRIDAMOLE	PERSANTINE (EQ)	1112	50 MG	10 ML	AMP
DIPYRIDAMOLE	PERSANTINE (EQ)	2456	5 MG	1 ML	**
DOBUTAMINE	DOBUTAMINE	1737	12.5 MG	1 ML	**
DOBUTAMINE	DOBUTAMINE	12	250 MG	20 ML	VIAL
DOBUTAMINE 500 MG-D5W	DOBUTAMINE 500 MG-D5W	1645		250 ML	IV BAG
DOCETAXEL	TAXOTERE	2338	10 MG	1 ML	**
DOPAMINE	DOPAMINE	1044	200 MG	5 ML	VIAL
DOPAMINE	DOPAMINE	1734	40 MG	1 ML	**
DOPAMINE 400 MG-D5W	DOPAMINE 400 MG-D5W	1640		250 ML	IV BAG
DOPAMINE 800 MG-D5W	DOPAMINE 800 MG-D5W	2186		250 ML	IV BAG

Selected Medication

**Generic Name (External ID) (Strength / Volume) (Dosage Form):**

DOPAMINE (1044) (200 MG / 5 ML) (VIAL)

Displayed Name:  Therapeutic Class:  Class ID:

Rule Sets:

Container Volume: mL

Piggyback delivery allowed

Allow piggyback to interrupt this infusion

Clinical Use (optional)

If the Clinical Use is blank, it will be updated with the value in the Default Clinical Use from the Master Infuser Setup.

10. Click **Next**.

11. Select the dosing unit from the drop-down list and enter the values for soft and hard limits. (You must specify at least one limit.)
12. Once you enter a value for Dosing Unit and dosing limit(s), you will be able to add three more dosing units, for a total of four dosing units for the selected medication entry with the same Displayed Name and Concentration.

You can add each selection by clicking the green plus “+” sign.

**Note:** A tab with red text denotes either incomplete or invalid dosing unit and/or dosing limits.

13. Click **Save & Add Another Rule Set** or **Save & Close** to add the medication entry to the CCA.

or

If you have a Bolus enabled infuser, you can place a tick mark next to **Enable Bolus** if you want to set bolus dose limits for this medication. See [To Set a Bolus](#): section on page 138.

## To add a Label Only rule set medication entry in a CCA:

1. Select the desired CCA from the Target List drop-down list.

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Rule Set	Clinical
No Drug Selected		No Drug Selected		Label Only	
HYDROMORPHONE	349	HYDROMORPHONE		Label Only	
CEFAZOLIN	1433	CEFAZOLIN	__mg / __mL	Full	NOT SPEC

2. From the Target List, click **Add**.
3. Select the Generic Name of a medication.

**Note:** Selecting a **Generic Name** from the list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and **Class ID** fields.

Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form
DOBUTAMINE	DOBUTAMINE	1737	12.5 MG	1 ML	***
DOBUTAMINE	DOBUTAMINE	12	250 MG	20 ML	VIAL
DOBUTAMINE 500 MG-D5W	DOBUTAMINE 500 MG-D5W	1645		250 ML	IV BAG
DOCETAXEL	TAXOTERE	2338	10 MG	1 ML	***
DOPAMINE	DOPAMINE	1044	200 MG	5 ML	VIAL
DOPAMINE	DOPAMINE	1734	40 MG	1 ML	***
DOPAMINE 400 MG-D5W	DOPAMINE 400 MG-D5W	1640		250 ML	IV BAG
DOPAMINE 800 MG-D5W	DOPAMINE 800 MG-D5W	2186		250 ML	IV BAG
DOXAPRAM	DOPRAM	3065	20 MG	1 ML	***
DOXAPRAM	DOPRAM	308	400 MG	20 ML	VIAL

Selected Medication: **Generic Name (External ID) (Strength / Volume) (Dosage Form):**  
**DOPAMINE 400 MG-D5W (1640) (/ 250 ML) (IV BAG)**

Displayed Name: DOPAMINE 400 MG-D5W      Therapeutic Class: BETA-ADRENERGIC AGONISTS      Class ID: 12:12.08

Rule Sets: **Label Only**

Piggyback delivery allowed  
 Allow piggyback to interrupt this infusion

**Note:** If the desired generic name is not in the **Generic Name** list, you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

4. The **Displayed Name** can be changed as desired, for example, to accommodate Tall Man lettering or another unique name. The maximum number of characters in a Displayed Name is determined by how it is displayed on the infuser screen. Depending on character width, the maximum number of characters allowed in a medication name can vary from 17 to 29.
5. Select **Label Only** from the **Rule Sets** drop-down list.
6. Place a check mark in the box next to **Piggyback delivery allowed**, if desired.
7. Place a check mark in the box next to **Allow Piggyback to interrupt this infusion**, if desired.
8. Click **Next**.
9. Click **Save & Add Another** or **Save & Close** to add the medication entry to the CCA.  
or

If you have a Bolus enabled infuser, you can place a tick mark next to Enable Bolus if you want to set bolus dose limits for this medication. See [To Set a Bolus](#): section on page 138.

## To edit a medication entry in a CCA:

1. Select the CCA containing the medication entry you want to view from the Target List drop-down list.

The screenshot shows the 'Target List: W-1' interface. At the top, there are tabs for 'Drug Library Management', 'Reports', 'CCA Setup', and 'Master Infuser Setup'. Below these is a 'Finalize' button. The main area is titled 'Target List: W-1' and contains a dropdown menu set to 'W-1', along with 'Add', 'Edit', 'View', and 'Remove' buttons. The 'Edit' button is circled in red. Below this is a sub-section with 'Dose Rate Limits' and 'Bolus Limits' tabs. A table displays medication entries:

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Rule Set	▲ Clinical
No Drug Selected		No Drug Selected		Label Only	
HYDROMORPHONE	349	HYDROMORPHONE		Label Only	
CEFAZOLIN	1433	CEFAZOLIN	__ mg / __ mL	Full	NOT SPECI

2. From the Target List, select the medication entry you want to edit.
3. Click **Edit**.

**Helpful Hint:** You can also double-click a medication entry to display the **Rule Set** dialog box.

4. Make changes as desired.

**Note:** You cannot change the **Therapeutic Class** or **Class ID** when editing a medication entry in a CCA.

The screenshot shows the 'Target List: Edit Rule Set' dialog box. The title bar includes a close button (X). The main content is titled 'Medication and Concentration' and contains the following fields:

- Generic Name (External ID) (Strength / Volume) (Dosage Form):** DOPAMINE (10-44) (200 MG / 5 ML) {VIAL} [Select]
- Displayed Name:** DOPAMINE
- Therapeutic Class:** BETA-ADRENERGIC AGONISTS\1
- Class ID:** 12:12.08
- Summary:** DOPAMINE 200 mg / 5 mL for Clinical Use "\_\_\_" Dosed in mL/hr
- Rule Sets:** Full
- Concentration:** Medication Amount: 200, Medication Unit: mg, Diluent Amount: 5 mL. Checkboxes:  Piggyback delivery allowed,  Allow piggyback to interrupt this infusion.
- Clinical Use (optional):** [Blank text box]
- Dose Limits:** Dosing Unit: mL/hr, LHL: 1, LSL: [Blank], USL: [Blank], UHL: [Blank]

A green box highlights the 'Concentration' section, and a green arrow points to the '4' in the list below.

5. Click **Save & Close** to save changes.



**Note:** If the medication entry that is edited is assigned to only one CCA, the medication entry will also be updated with the same change in the Master Drug Formulary. If the medication entry that is edited is assigned to more than one CCA, a new medication entry will be created in the Master Drug Formulary.

### To view a medication entry in a CCA:

1. Select the CCA containing the medication entry you want to view from the Target List drop-down list.

The screenshot shows the 'Drug Library Management' window with tabs for 'Reports', 'CCA Setup', and 'Master Infuser Setup'. Below the 'Finalize' button is the 'Target List: W-1' section. A dropdown menu is set to 'W-1', and buttons for 'Add', 'Edit', 'View', and 'Remove' are present. The 'View' button is circled. Below this are tabs for 'Dose Rate Limits' and 'Bolus Limits'. A table displays medication entries:

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Rule Set	▲ Clinical
No Drug Selected		No Drug Selected		Label Only	
HYDROMORPHONE	349	HYDROMORPHONE		Label Only	
CEFAZOLIN	1433	CEFAZOLIN	__ mg / __ mL	Full	NOT SPECI

2. From the Target List, select the medication entry you want to view.
3. Click **View**.

The screenshot shows the 'Target List: View Rule Set' dialog box. The 'Medication and Concentration' section is highlighted with a blue border. It contains the following information:

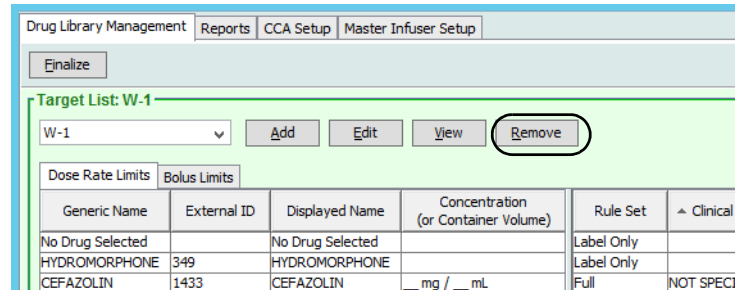
- Generic Name (External ID) (Strength / Volume) (Dosage Form):** DOPAMINE (1044) (200 MG / 5 ML) {VIAL}
- Displayed Name:** DOPAMINE
- Therapeutic Class:** BETA-ADRENERGIC AGONISTS\1
- Class ID:** 12:12.08
- Summary:** DOPAMINE 200 mg / 5 mL for Clinical Use " " Dosed in mL/hr
- Rule Sets:** Full
- Concentration:** Medication Amount: 200, Medication Unit: mg, Diluent Amount: 5 mL
- Options:**  Piggyback delivery allowed,  Allow piggyback to interrupt this infusion
- Clinical Use (optional):** (Blank field)
- Dose Limits:** Dosing Unit: mL/hr, LHL: 1, LSL: , USL: , UHL:

Buttons for 'Close' and 'Help' are at the bottom.

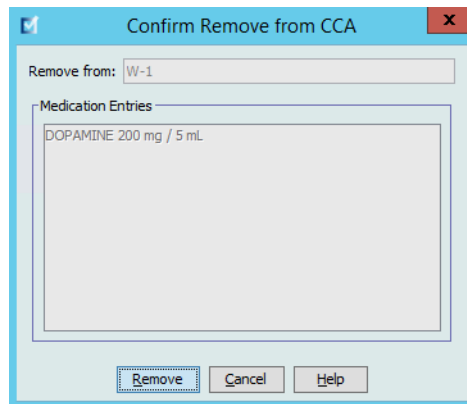
4. Click **Close** to exit the screen.

### To remove a medication entry from a CCA:

1. Select the CCA containing the medication entry you want to remove from the Target List drop-down list.



2. Select the medication entry you want to remove.
3. Click **Remove**.



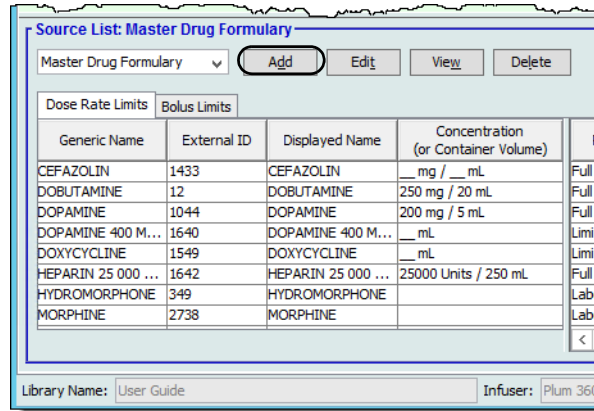
4. At the confirmation to remove from the CCA, click **Remove**.

## Working with the Master Drug Formulary (Plum 360)

The Master Drug Formulary can contain medication entries not assigned to a CCA, to facilitate later use. The total number of medication entries in the Master Drug Formulary for the Plum 360 infuser can either be 7,200 or 16,000, depending on your license.

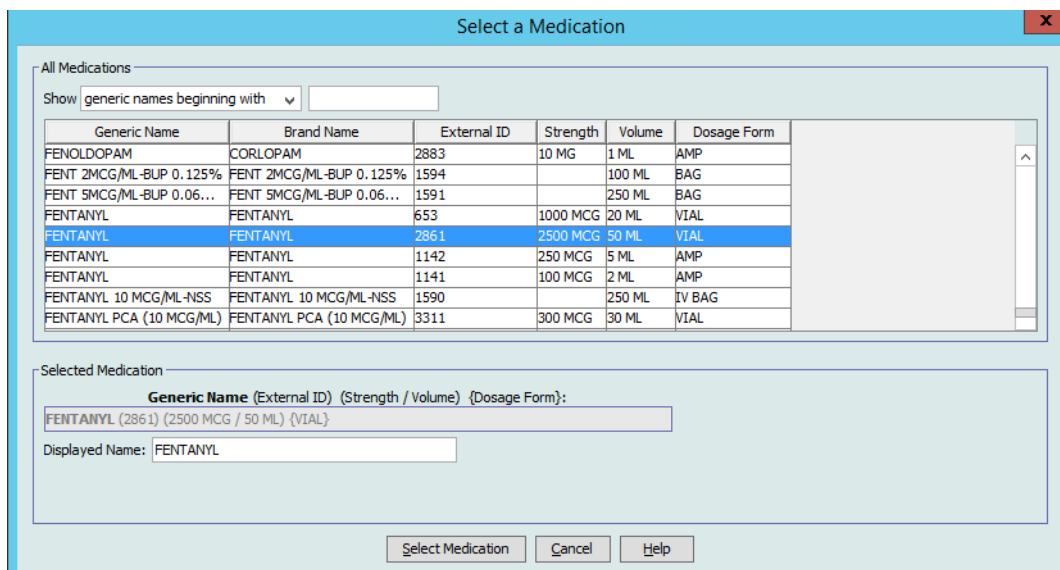
**To add a medication entry with a Full rule set to the Master Drug Formulary:**

1. Select **Master Drug Formulary** as the Source List.



2. From the Source List, click **Add**.
3. Select the Generic Name for the medication entry.

**Note:** Selecting a **Generic Name** from the drop-down list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and **Class ID** fields.



4. Click **Select Medication**.

**Note:** The **Displayed Name** field cannot be left blank. The maximum number of characters in a medication name is determined by how it is displayed on the infuser screen after it is downloaded. Depending on character width, the maximum number of characters allowed in a medication name can vary from 17 to 29.

**Note:** If the desired generic name is not in the **Generic Name** drop-down list, you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

5. Select **Full** (if not already selected) from the **Rule Sets** drop-down list.
6. Enter a **Medication Amount** (optional), select the **Medication Unit** and **Diluent Amount** (optional).

7. Select the dosing unit and type the values for soft and hard limits. (You must specify at least one limit.)

## For the Plum 360 15.1x only

### Time-based dosing unit:

If you select a dosing unit that is time-based, type the values for soft and hard limits. (You must specify at least one limit.) Time Limits and Dose Rate Limits fields will **not** be enabled at the same time and will be greyed out.

### Non time-based dosing unit:

If you select a dosing unit that is non time-based, type the values for soft and hard limits. (You must specify at least one limit.)

The Time Limits fields and Dose Rate Limits become enabled. You will need to select either time limits or dose rate limits.

Time Limits is the default, using the format hhhh:mm with a maximum of 1500:00.

If you use Dose Rate Limits, use the drop-down to select a Dose Rate Unit and then specify at least one value for soft or hard limits.

8. Click **Save & Add Another Dosing Unit** or **Save & Close** to add the medication entry to the Master Drug Formulary.

**Note:** When a medication entry is added to the Master Drug Formulary, it is not assigned to a CCA.

### To add a Limited rule set medication entry to the Master Drug Formulary:

1. Select **Master Drug Formulary** as the Source List.
2. From the Source List, click **Add**.

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	
CEFAZOLIN	1433	CEFAZOLIN	__ mg / __ mL	Full
DOBUTAMINE	12	DOBUTAMINE	250 mg / 20 mL	Full
DOPAMINE	1044	DOPAMINE	200 mg / 5 mL	Full
DOPAMINE 400 M...	1640	DOPAMINE 400 M...	__ mL	Limit
DOXYCYCLINE	1549	DOXYCYCLINE	__ mL	Limit
HEPARIN 25 000 ...	1642	HEPARIN 25 000 ...	25000 Units / 250 mL	Full
HYDROMORPHONE	349	HYDROMORPHONE		Label
MORPHINE	2738	MORPHINE		Label

Library Name: User Guide      Infuser: Plum 360

3. Select the Generic Name for the medication entry.

**Note:** Selecting a **Generic Name** from the drop-down list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and **Class ID** fields.

Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form
FENOLDOPAM	CORLOPAM	2883	10 MG	1 ML	AMP
FENT 2MCG/ML-BUP 0.125%	FENT 2MCG/ML-BUP 0.125%	1594		100 ML	BAG
FENT 5MCG/ML-BUP 0.06...	FENT 5MCG/ML-BUP 0.06...	1591		250 ML	BAG
FENTANYL	FENTANYL	653	1000 MCG	20 ML	VIAL
FENTANYL	FENTANYL	2861	2500 MCG	50 ML	VIAL
FENTANYL	FENTANYL	1142	250 MCG	5 ML	AMP
FENTANYL	FENTANYL	1141	100 MCG	2 ML	AMP
FENTANYL 10 MCG/ML-NSS	FENTANYL 10 MCG/ML-NSS	1590		250 ML	IV BAG
FENTANYL PCA (10 MCG/ML)	FENTANYL PCA (10 MCG/ML)	3311	300 MCG	30 ML	VIAL

Selected Medication

**Generic Name** (External ID) (Strength / Volume) (Dosage Form):  
 FENTANYL (2861) (2500 MCG / 50 ML) (VIAL)

Displayed Name: FENTANYL

Select Medication      Cancel      Help

4. Click **Select Medication**.

**Note:** The **Displayed Name** field cannot be left blank. The maximum number of characters in a displayed name is determined by how it is displayed on the infuser screen after it is downloaded. Depending on character width, the maximum number of characters allowed in a medication name can vary from 17 to 29.

**Note:** If the desired generic name is not in the **Generic Name** drop-down list, you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

5. Select **Limited** from the **Rule Sets** drop-down list.

6. Type the **Container Volume** amount (optional).
  7. Select mL/hr and enter the values for soft and hard limits. (You must specify at least one limit.)
  8. Click **Save & Add Another Dosing Unit** or **Save and Close**.
- or
9. If you have a Bolus enabled infuser, you can place a tick mark next to Enable Bolus if you want to set bolus dose limits for this medication. See [To Set a Bolus](#): section on page 138.

**Note:** When a medication entry is added to the Master Drug Formulary, it is not assigned to a CCA.

## To add a Label Only medication entry to the Master Drug Formulary:

1. Select **Master Drug Formulary** as the Source List.

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)
CEFAZOLIN	1433	CEFAZOLIN	__ mg / __ mL
DOBUTAMINE	12	DOBUTAMINE	250 mg / 20 mL
DOPAMINE	1044	DOPAMINE	200 mg / 5 mL
DOPAMINE 400 M...	1640	DOPAMINE 400 M...	__ mL
DOXYCYCLINE	1549	DOXYCYCLINE	__ mL
HEPARIN 25 000 ...	1642	HEPARIN 25 000 ...	25000 Units / 250 mL
HYDROMORPHONE	349	HYDROMORPHONE	
MORPHINE	2738	MORPHINE	

Library Name: User Guide      Infuser: Plum 360

2. From the Source List, click **Add**.
3. Select the Generic Name for the medication entry.

**Note:** Selecting a **Generic Name** from the drop-down list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and **Class ID** fields.

Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form
FENOLDOPAM	CORLOPAM	2883	10 MG	1 ML	AMP
FENT 2MCG/ML-BUP 0.125%	FENT 2MCG/ML-BUP 0.125%	1594		100 ML	BAG
FENT 5MCG/ML-BUP 0.06...	FENT 5MCG/ML-BUP 0.06...	1591		250 ML	BAG
FENTANYL	FENTANYL	653	1000 MCG	20 ML	VIAL
FENTANYL	FENTANYL	2861	2500 MCG	50 ML	VIAL
FENTANYL	FENTANYL	1142	250 MCG	5 ML	AMP
FENTANYL	FENTANYL	1141	100 MCG	2 ML	AMP
FENTANYL 10 MCG/ML-NSS	FENTANYL 10 MCG/ML-NSS	1590		250 ML	IV BAG
FENTANYL PCA (10 MCG/ML)	FENTANYL PCA (10 MCG/ML)	3311	300 MCG	30 ML	VIAL

Selected Medication

**Generic Name** (External ID) (Strength / Volume) (Dosage Form):  
 FENTANYL (2861) (2500 MCG / 50 ML) (VIAL)

Displayed Name: FENTANYL

Select Medication    Cancel    Help



---

**Note:** The **Displayed Name** field cannot be left blank. The maximum number of characters in a displayed name is determined by how it is displayed on the infuser screen after it is downloaded. Depending on character width, the maximum number of characters allowed in a medication name can vary from 17 to 29.

---

**Note:** If the desired generic name is not in the **Generic Name** drop-down list (or if no generic names appear in the list), you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

---

4. Select **Label Only** from the **Rule Sets** drop-down list.
5. Place a check mark in the box next to **Piggyback delivery allowed**, if desired.
6. Click **Save & Add Another Rule Set** or **Save & Close** to add the medication entry to the Master Drug Formulary.

or

If you have a Bolus enabled infuser, you can place a tick mark next to **Enable Bolus** if you want to set bolus dose limits for this medication. See [To Set a Bolus](#): section on page 138.

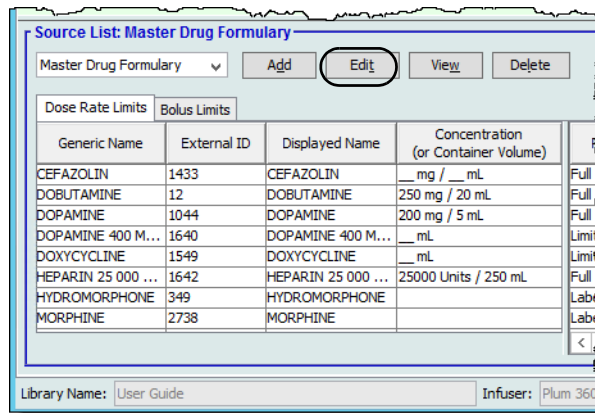
---

**Note:** When a medication entry is added to the Master Drug Formulary, it is not assigned to any CCA.

---

## To edit a medication entry in the Master Drug Formulary:

1. Select **Master Drug Formulary** as the Source List.



2. From the Source List, select the medication entry you want to edit.
3. Click **Edit**.

**Helpful Hint:** You can also double-click a medication entry to display the **Rule Set** dialog box.

4. Make changes as desired.

**Medication and Concentration**

Generic Name (External ID) (Strength / Volume) (Dosage Form):  
 DOPAMINE 400 MG-D5W (1640) ( / 250 ML) (IV BAG) [Select]

Displayed Name: DOPAMINE 400 MG-D5W    Therapeutic Class: BETA-ADRENERGIC AGONISTS    Class ID: 12:12.08

Summary: DOPAMINE 400 MG-D5W \_\_ mL for Clinical Use " \_\_ " Dosed in mL/kg/min

Rule Sets: Limited [v]  
 Container Volume: mL [ ]  
 Piggyback delivery allowed  
 Allow piggyback to interrupt this infusion

Clinical Use (optional)  
 [ ]  
 If the Clinical Use is blank, it will be updated with the value in the Default Clinical Use from the Master Infuser Setup.

Dose Limits  
 Dosing Unit: mL/kg/min [v]    LHL: [ ]    LSL: [ ]    USL: [ ]    UHL: 50 [ ]

[ Save & Close ] [ Cancel ] [ Help ]

5. Click **Save & Close** to save changes.

**Important:** Changing the dosing unit or medication unit will erase all previously entered limits.

**Note:** When a medication entry is edited, the changes are reflected in the Master Drug Formulary and a confirmation pop-up displays the CCAs that are affected.

## To view a medication entry in the Master Drug Formulary:

1. Select **Master Drug Formulary** from the Source List.

Source List: Master Drug Formulary

Master Drug Formulary | Add | Edit | **View** | Delete

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	
CEFAZOLIN	1433	CEFAZOLIN	__ mg / __ mL	Full
DOBUTAMINE	12	DOBUTAMINE	250 mg / 20 mL	Full
DOPAMINE	1044	DOPAMINE	200 mg / 5 mL	Full
DOPAMINE 400 M...	1640	DOPAMINE 400 M...	__ mL	Limit
DOXYCYCLINE	1549	DOXYCYCLINE	__ mL	Limit
HEPARIN 25 000 ...	1642	HEPARIN 25 000 ...	25000 Units / 250 mL	Full
HYDROMORPHONE	349	HYDROMORPHONE		Label
MORPHINE	2738	MORPHINE		Label

Library Name: User Guide | Infuser: Plum 360

2. From the Source List, select the medication entry you want to view.
3. Click **View**.

Source List: View Rule Set

**Medication and Concentration**

Generic Name (External ID) (Strength / Volume) (Dosage Form):  
 DOPAMINE 400 MG-D5W (1640) ( / 250 ML) (IV BAG) | Select

Displayed Name: DOPAMINE 400 MG-D5W | Therapeutic Class: BETA-ADRENERGIC AGONISTS | Class ID: 12:12.08

Summary: DOPAMINE 400 MG-D5W \_\_ mL for Clinical Use " \_\_ " Dosed in mL/kg/min

Rule Sets: Limited | Container Volume: mL |  Piggyback delivery allowed |  Allow piggyback to interrupt this infusion

Clinical Use (optional):  
 If the Clinical Use is blank, it will be updated with the value in the Default Clinical Use from the Master Infuser Setup.

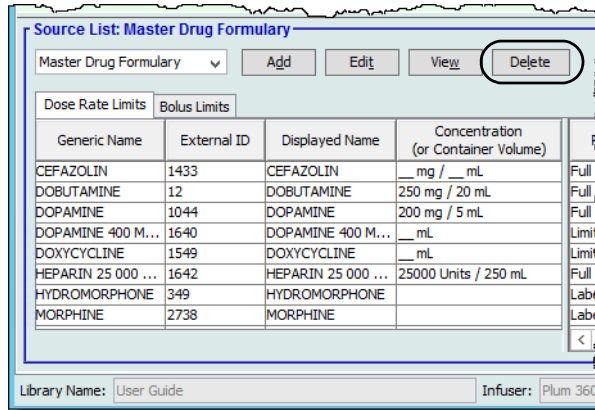
Dose Limits  
 Dosing Unit: mL/kg/min | LHL: | LSL: | USL: | UHL: 50

Close | Help

4. Click **Close** to exit the screen.

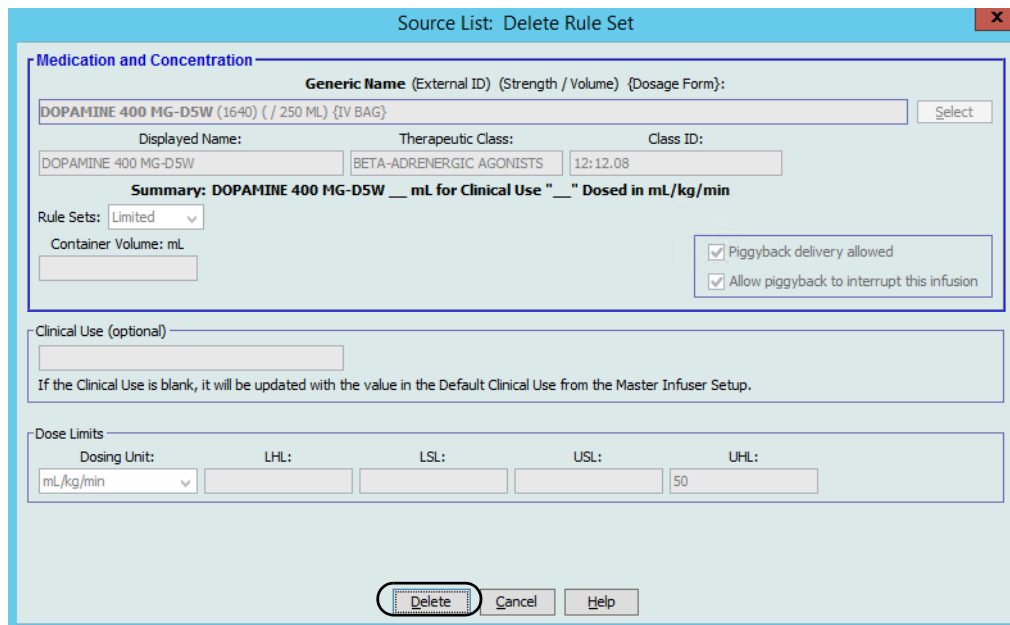
## To delete a medication in the Master Drug Formulary:

1. Select **Master Drug Formulary** from the Source List.



Generic Name	External ID	Displayed Name	Concentration (or Container Volume)
CEFAZOLIN	1433	CEFAZOLIN	__ mg / __ mL
DOBUTAMINE	12	DOBUTAMINE	250 mg / 20 mL
DOPAMINE	1044	DOPAMINE	200 mg / 5 mL
DOPAMINE 400 M...	1640	DOPAMINE 400 M...	__ mL
DOXYCYCLINE	1549	DOXYCYCLINE	__ mL
HEPARIN 25 000 ...	1642	HEPARIN 25 000 ...	25000 Units / 250 mL
HYDROMORPHONE	349	HYDROMORPHONE	
MORPHINE	2738	MORPHINE	

2. From the Source List, select the medication entry you want to delete.



**Medication and Concentration**

Generic Name (External ID) (Strength / Volume) (Dosage Form):  
 DOPAMINE 400 MG-D5W (1640) (/ 250 ML) {IV BAG} Select

Displayed Name: DOPAMINE 400 MG-D5W      Therapeutic Class: BETA-ADRENERGIC AGONISTS      Class ID: 12:12.08

Summary: DOPAMINE 400 MG-D5W \_\_ mL for Clinical Use " \_\_ " Dosed in mL/kg/min

Rule Sets: Limited ▼

Container Volume: mL   

Piggyback delivery allowed  
 Allow piggyback to interrupt this infusion

Clinical Use (optional)  
    
 If the Clinical Use is blank, it will be updated with the value in the Default Clinical Use from the Master Infuser Setup.

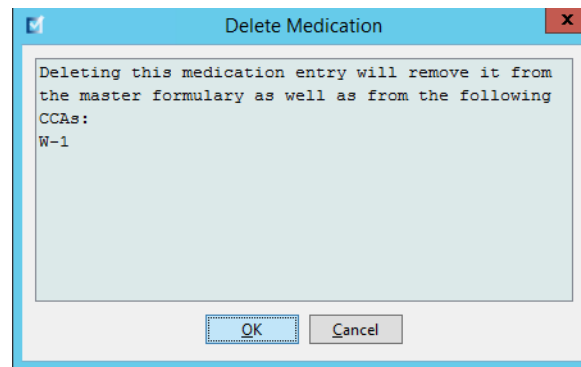
Dose Limits

Dosing Unit: mL/kg/min ▼      LHL:         LSL:         USL:         UHL: 50

Delete Cancel Help

3. Click **Delete**.

The following pop-up will display only if the medication entry is assigned to one or more CCA.



4. Click **OK**.

## To copy to Target CCA:

1. Select a medication entry from the Master Drug Formulary.

**Note:** A Target List CCA must be selected before you can copy a medication entry to a Target CCA from the Master Drug Formulary.

2. Click **Copy to Target CCA**.

Source List: Master Drug Formulary

Master Drug Formulary Add Edit View Delete Copy to Target CCA Medication Entries: 15

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Rule Set	Clinical Use	Dosing Unit	Lower Hard Limit	Lower Soft Limit	Upper Soft Limit	Upper Hard Limit
DOPAMINE	1044	DOPAMINE	200 mg / 5 mL	Full	NOT SPECI...	mL/hr	1			
DOPAMINE 400 M...	1640	DOPAMINE 400 M...	__ mL	Limited	NOT SPECI...	mL/kg/min				50
DOXYCYCLINE	1549	DOXYCYCLINE	__ mL	Limited	NOT SPECI...	mL/hr	1			
FENTANYL	2861	FENTANYL	2500 mcg / 50 mL	Full	NOT SPECI...	mcg		4		
HEPARIN 25 000 ...	1642	HEPARIN 25 000 ...	25000 Units / 250 mL	Full	NOT SPECI...	units/hr	100	500	10000	15000
HYDROMORPHONE	349	HYDROMORPHONE		Label Only						
MORPHINE	2738	MORPHINE		Label Only						
No Drug Selected		No Drug Selected		Label Only						

Library Name: User Guide Infuser: Plum 360 15.1x Status: Worksheet Modified: May 11 2016 06:15PM Mode: Edit User: mednet\_admin

3. Click **Copy** on the **Confirm Copy to CCA** pop-up.

Confirm Copy to CCA

Copy from: Master Drug Formulary

Copy to: W-1

Medication Entries

DOPAMINE 400 MG-D5W \_\_ mL

Copy Cancel Help

# Part 2: Plum A+

## Defining Rule Sets

### Full Rule Set

A Full rule set allows you to enter a complete concentration (for example, 250 mg/500 mL) or partial concentration (for example, 250 mg/\_ mL, \_mg/500 mL or, \_mg/\_ mL). Creating a medication entry for the standard concentrations of any medication reduces the number of programming steps on the infuser for the clinician. At least one dosing limit value **must** be entered for each Full rule set.

The screenshot shows the 'Add Rule Set' dialog box with the following details:

- Generic Name (External ID) (Strength / Volume) (Dosage Form):** DOPAMINE (1044) (200 MG / 5 ML) {VIAL}
- Displayed Name:** DOPAMINE
- Therapeutic Class:** BETA-ADRENERGIC AGONISTS\1
- Class ID:** 12:12.08
- Summary:** DOPAMINE 200 mg / 5 mL Dosed in mL/hr
- Rule Sets:** Full
- Concentration:**
  - Medication Amount: 200
  - Medication Unit: mg
  - Diluent Amount: mL: 5
- Dosing Unit:** mL/hr
- LHL:** 1
- LSL:** |
- USL:** |
- UHL:** |

Buttons at the bottom: Save & Add Another, Save & Close, Cancel, Help.

Leaving the medication or diluent amounts blank allows the clinician to enter a non-standard concentration at the time of programming. Full rule sets defined with a partial concentration will require the clinician to enter the concentration values when the dosing units are not mL/hr. When the dosing units are mL/hr, you do not have to enter concentration information.

## Limited Rule Set

A Limited rule set does not require a concentration to be defined. At least one dosing limit value must be entered for each Limited rule set. The Container Volume field is optional. When programming the infuser for a medication with a Limited rule set, the clinician enters only the rate, volume to be infused (VTBI) and duration.

The screenshot shows the 'Add Rule Set' dialog box for DOPAMINE. The 'Generic Name' field is set to 'DOPAMINE (1734) (40 MG / 1 ML) {\*\*}'. The 'Displayed Name' is 'DOPAMINE', the 'Therapeutic Class' is 'BETA-ADRENERGIC AGONISTS', and the 'Class ID' is '12:12.08'. The 'Summary' is 'DOPAMINE \_\_ mL Dosed in mL/hr'. The 'Rule Sets' dropdown is set to 'Limited'. The 'Container Volume: mL' field is empty. The 'Dosing Unit' is 'mL/hr', and the 'LHL' field is '10'. The 'LSL', 'USL', and 'UHL' fields are empty. The dialog box has buttons for 'Save & Add Another', 'Save & Close', 'Cancel', and 'Help'.

## Label Only Rule Set

A Label Only rule set allows the clinician to see the medication name displayed on the infuser. There are no dosing limits associated with a Label Only rule set. The clinician selects the dosing units during programming. If the dosing units are not mL/hr, the clinician also enters the concentration values.

The screenshot shows the 'Add Rule Set' dialog box for HYDROCORTISONE. The 'Generic Name' field is set to 'HYDROCORTISONE (191) (100 MG / 2 ML) {VIAL}'. The 'Displayed Name' is 'HYDROCORTISONE', the 'Therapeutic Class' is 'ADRENALS', and the 'Class ID' is '68:04.00'. The 'Summary' is 'HYDROCORTISONE'. The 'Rule Sets' dropdown is set to 'Label Only'. The 'Dosing Unit' is 'mL/hr'. The 'LHL', 'LSL', 'USL', and 'UHL' fields are empty. The dialog box has buttons for 'Save & Add Another', 'Save & Close', 'Cancel', and 'Help'.



Each type of rule set will create a different display for the medication in the Drug List on the infuser.

You can create medication entries by adding them to the Master Drug Formulary or by adding them directly to a CCA. Medication entries added to a CCA are automatically added to the Master Drug Formulary.

Within a CCA, no two medication entries may have exactly the same External ID and Concentration. Also, no two medication entries may have exactly the same Displayed Name and Concentration.

In the Master Drug Formulary, two medication entries may have the same display name, medication amount, medication unit, diluent amount, and dosing units, as long as one or more of the following limits are different:

- Lower soft limit (LSL)
- Lower hard limit (LHL)
- Upper soft limit (USL)
- Upper hard limit (UHL)

## Setting Dose Rate Limits

ICU Medical MedNet Meds allows you to define dose rate limits for both primary and secondary infusions. It is important that you understand how the dose rate limits function so please read this section carefully.

You can define upper and lower soft and hard limits as part of the rule set for each medication entry that you create in the library. As you configure the limits, the software enforces the following rule:

$$\text{Lower Hard Limit (LHL)} < \text{Lower Soft Limit (LSL)} \leq \text{Upper Soft Limit (USL)} < \text{Upper Hard Limit (UHL)}$$

### Soft Limits

*Soft Limits* are dose rate limits that can be overridden when programming the infuser. When a value entered on the infuser is lower than the lower soft limit or higher than the upper soft limit, the infuser displays a soft limit override confirmation message. The infuser records soft limit alerts and the user's response to the alert in its history logs.

For example, if the upper soft limit is set to 15 mL/hr and the clinician enters 16 mL/hr, the infuser will display a soft limit override alert. This alert notifies the clinician that the entry is outside the range of the soft limits set for that medication entry. The clinician can choose to continue programming using the override, or cancel the override and edit the value. Both the override and edit events are recorded separately in the infuser's history log.

### Hard Limits

*Hard limits* are dose rate limits that cannot be overridden; the infuser cannot be programmed with a rate that is lower than the lower hard limit or higher than the upper hard limit. (These events are not recorded in the infuser's history log file for Plum infusers with software versions prior to version 13.4.)

---

**Note:** The actual patient weight is not entered until the clinician programs the infuser. Therefore, ICU Medical MedNet Meds software cannot verify the validity of a lower limit when entering a weight-based medication entry. The infuser performs the final check when the clinician programs the infuser.

---

## Medication Entry Rules and Conventions

The ICU Medical MedNet Meds software uses the following conventions for Plum A+ medication entries:

- Full or Limited rule sets require at least one hard or soft limit.
- You can create medication entries by adding them to the Master Drug Formulary or by adding them directly to a CCA. Medication entries added to a CCA Target List are automatically added to the Master Drug Formulary List.
- “Validity” messages appear in red at the bottom of the Rule Set window. When you enter a value that is not allowed, the message specifies the defined range for the field, or the reason the value is not permitted.
- You cannot use the following characters in the medication name: comma (,), less than (<), greater than (>), single quotes (‘), double quotes (“), and ampersand (&).
- Once you select a medication unit, the dosing unit field will display only the enabled unit type.
- The software prohibits invalid numeric entries and signals such with an audible “beep.”
- You may use the vertical and horizontal scroll bars to navigate to an entry.
- If you do not select or populate a required field, an error message appears.
- When you highlight an entry on the Drug Library Management list view, buttons or features that are not allowed appear as “grayed” or disabled.
- When you add a new medication in the Generic Name field of the rule set window, you may search for a medication by typing the first few characters of its generic name. The drop-down list will navigate to show any matching medications.

# The Plum A+ Medication Rule Set

The Rule Set window shown here is used to configure a medication entry for the Plum A+ drug library.

The screenshot shows a software window titled "Source List: Add Rule Set" with a close button in the top right corner. The window contains the following fields and controls:


- Generic Name (External ID) (Strength / Volume) {Dosage Form}:** A dropdown menu showing "OXYTOCIN (537) (10 UNITS / 1 ML) {VIAL}" with a downward arrow.
- Displayed Name:** A text box containing "OXYTOCIN".
- Therapeutic Class:** A text box containing "OXYTOCICS".
- Class ID:** A text box containing "76:00.00".
- Summary:** A bolded text label "Summary: OXYTOCIN 10 units / 1000 mL Dosed in mL/hr".
- Rule Sets:** A dropdown menu showing "Full" with a downward arrow.
- Concentration:** A section with three input fields: "Medication Amount:" (text box with "10"), "Medication Unit:" (dropdown menu with "units" selected), and "Diluent Amount: mL" (text box with "1000").
- Dosing Unit:** A dropdown menu showing "mL/hr" with a downward arrow.
- LHL:** An empty text box.
- LSL:** An empty text box.
- USL:** An empty text box.
- UHL:** An empty text box.
- Message:** A red text label "Please specify at least one limit." located below the LHL, LSL, USL, and UHL fields.
- Buttons:** Four buttons at the bottom: "Save & Add Another", "Save & Close", "Cancel", and "Help".

## Rule Set Fields

The following table lists the fields, a brief description and allowed value range for the infuser.

Each medication entry must have a generic name and a displayed name; you cannot save a medication entry without a name in these fields. The number of characters in the displayed name is determined by how it is displayed on the infuser’s screen. Depending on character width, the maximum number of characters allowed in a displayed name can vary from 17 to 29.

To avoid potential confusion when creating medication entries, use only the medication name in the **Displayed Name** field and ensure that the external ID is identical to the external ID used in your institution’s formulary. Do not include the diluent as part of the medication name.

Parameter	Description	Allowable Range
Generic Name	This is the medication name from your Medication List. It is selected from the drop-down list and displays the External ID (the hospital's identifier for a medication). Strength/Volume and Dosage Form display only if part of your Medication List.	Not editable in the Rule Set
Displayed Name	This is the name that will be displayed on the infuser.	<ul style="list-style-type: none"> <li>Varies depending on the character width</li> <li>Cannot be blank</li> </ul> <p><b>CAUTION:</b> You cannot use the following characters in the displayed name:   comma (,), less than (&lt;), greater than (&gt;), single quotes ('), double quotes ("), and ampersand (&amp;).</p> <p><b>Note:</b> The display font changes on the Plum A+ infuser for lengthy displayed names.</p>
Therapeutic Class	The therapeutic class assigned to the medication entries.	Not editable in the Rule Set
Class ID	The ID number for the therapeutic class assigned to the medication entry.	Not editable in the Rule Set
Medication Amount	<p>Allows you to enter the medication amount in the units selected.</p> <p>The combination of medication amount, medication unit, and diluent amount creates the medication’s concentration.</p>	<p>For medication amounts in mcg, mg, grams, mEq, million units, or mmol:</p> <ul style="list-style-type: none"> <li>0.1–9999 and “Blank”</li> </ul> <p>For medication amounts in units:</p> <ul style="list-style-type: none"> <li>0.1–99999999 and “Blank”</li> </ul>
Medication Unit	Allows you to select the unit of measure for your medication amount.	mcg, mg, grams, mEq, million units, mmol and units

Parameter	Description	Allowable Range
Diluent Amount	Allows you to set the diluent amount associated with the medication entry. The diluent amount will vary depending on the container size, overfill, and volume of added solution.	<ul style="list-style-type: none"> <li>• 0.1–9999 and “Blank”</li> </ul>
Dosing Unit	Allows you to set the standard dosing unit for the medication. This will be the default value displayed on the infuser. Once dosing unit and concentration are set in ICU Medical MedNet Meds, they cannot be changed on the infuser by the clinician programming the device.	mL/hr, mcg/kg/min, mcg/kg/hr, mcg/min, mcg/hr, mg/kg/hr, mg/min, mg/hr, grams/hr, ng/kg/min, mmol/min, mmol/hr, mEq/hr, Million units/hr, units/kg/min, units/kg/hr, units/min, units/hr, or mUn/min
LHL, LSL, USL, UHL	Lower hard limit, lower soft limit, upper soft limit, upper hard limit.  Allows you to set the upper and/or lower dose rate limits for the selected medication.	<p>The units for the soft and hard limits are the same as the dosing units selected in the medication rule set.</p> <p>For ng/kg/min, mcg/kg/min, mcg/kg/hr, mcg/min, mcg/hr, mg/min, mg/hr, mg/kg/hr, grams/hr, Million Units/hr, mEq/hr, mmol/min, mmol/hr:</p> <ul style="list-style-type: none"> <li>• 0.001–999*</li> </ul> <p>For mL/hr, mUn/min, units/min, units/hr, units/kg/hr, units/kg/min:</p> <ul style="list-style-type: none"> <li>• 0.1–999</li> </ul>
<p>* Some infusers support a range of 100-9999. Refer to your infuser's System Operating Manual for complete details and allowable range.</p>		

## Step-by-step Procedures

The following section provides step-by-step procedures that will enable you to create and manage medication entries. In this section you will learn how to do the following:

- Add a medication entry with a Full rule set in a CCA
- Add a medication entry with a Limited rule set in a CCA
- Add a medication entry with a Label Only rule set in a CCA
- Edit a medication entry in a CCA
- View a medication entry in a CCA
- Remove a medication entry from a CCA
- Add a medication entry with a Full rule set the Master Drug Formulary
- Add a medication entry with a Limited rule set to the Master Drug Formulary
- Add a Label Only medication entry to the Master Drug Formulary
- Edit a medication entry in the Master Drug Formulary
- View a medication entry in the Master Drug Formulary
- Delete a medication entry from the Master Drug Formulary
- Copy a medication entry from the Master Drug Formulary to a Target CCA

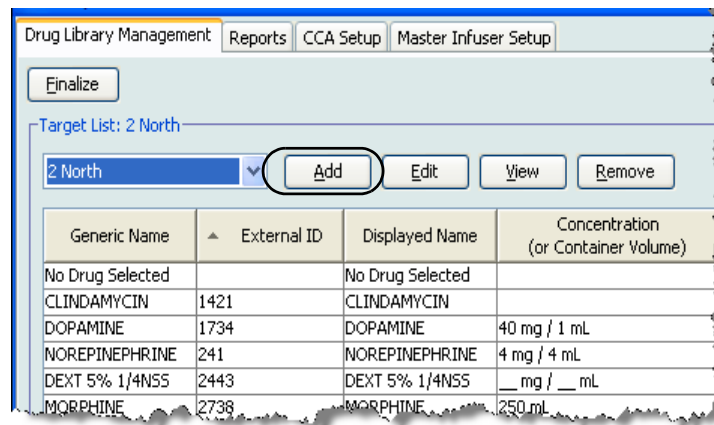
## Working with CCA Medication Entries (Plum A+)

**Note:** When adding medication entries to the Target List, both the selected CCA and the Master Drug Formulary are updated. When adding to the Source List, only the Master Drug Formulary is updated.

The maximum number of medication entries allowed in a CCA is 150.

### To add a medication entry with a Full rule set in a CCA:

1. Select the desired CCA as the Target List from the drop-down list.



2. From the Target List, click **Add**.

3. Select the **Generic Name** for the medication entry.

**Note:** Selecting a generic name from the drop-down list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and **Class ID** fields.

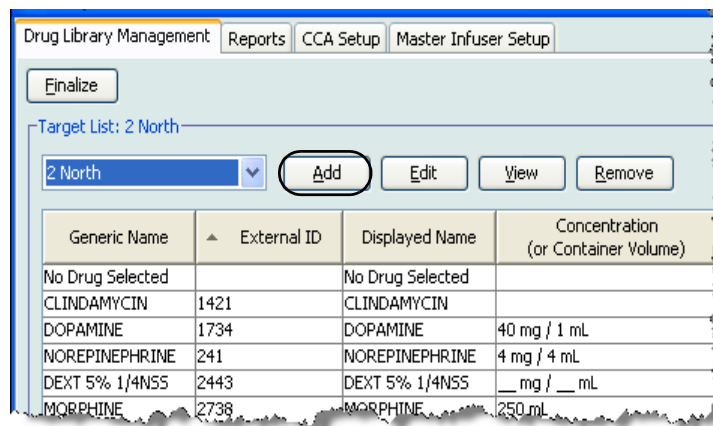
**Note:** The **Displayed Name** can be altered as desired, for example, to accommodate “Tall Man lettering.” The maximum number of characters in a **Displayed Name** is determined by how it is displayed on the infuser screen. Depending on character width, the maximum number of characters allowed in a medication name can vary from 17 to 29.

**Note:** If the desired generic name is not in the **Generic Name** drop-down list (or if no generic names appear in the list), you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

4. The **Displayed Name** can now be changed as desired; for example, to accommodate Tall Man lettering or another unique name.
5. Select **Full** (if not selected) from the **Rule Sets** drop-down list.
6. Select the medication unit and enter a Medication Amount and Diluent Amount (if desired).
7. Select the dosing unit and enter the values for soft and hard limits. (You must specify at least one limit.)
8. Click **Save & Add Another** or **Save & Close** to add the medication entry to the CCA.

## To add a medication entry with a Limited rule set in a CCA:

1. Select the desired CCA as the Target List.



2. From the Target List, click **Add**.
3. Select the Generic Name for the medication entry.

---

**Note:** Selecting a **Generic Name** from the drop-down list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and **Class ID** fields.

---



---

**Note:** The **Displayed Name** can be altered as desired, for example, to accommodate Tall Man lettering. The maximum number of characters in a **Displayed Name** is determined by how it is displayed on the infuser screen. Depending on character width, the maximum number of characters allowed in a medication name can vary from 17 to 29.

---



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**Note:** If the desired generic name is not in the **Generic Name** drop-down list (or if no generic names appear in the list), you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

---



The screenshot shows a dialog box titled "Target List: Add Rule Set". It contains the following fields and controls:

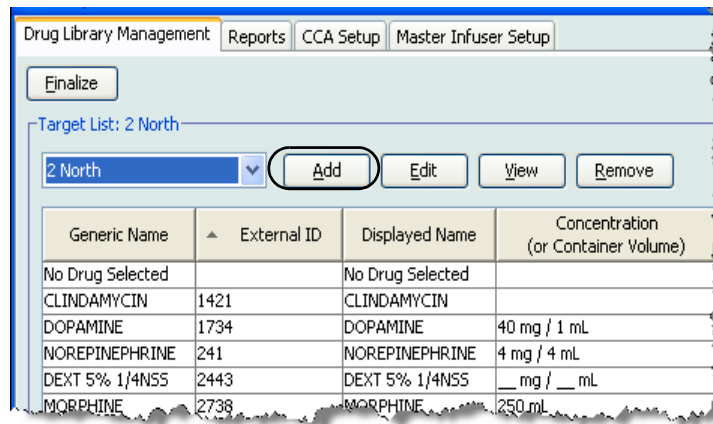
- Generic Name (External ID) (Strength / Volume) {Dosage Form}:** A text box containing "DEXT 5%/NSS (1504) ( / 1000 ML) {IV BAG}" with a dropdown arrow on the right. A green line labeled '3' points to this field.
- Displayed Name:** A text box containing "DEXT 5%/NSS". A green line labeled '4' points to this field.
- Therapeutic Class:** A text box containing "CALORIC AGENTS".
- Class ID:** A text box containing "40:20.00".
- Summary:** A bolded text label "DEXT 5%/NSS 200 mL Dosed in mL/hr".
- Rule Sets:** A dropdown menu showing "Limited". A green line labeled '5' points to this dropdown.
- Container Volume: mL:** A text box containing "200". A green line labeled '6' points to this field.
- Dosing Unit:** A dropdown menu showing "mL/hr". A green line labeled '7' points to this dropdown.
- LHL:** A text box containing "1".
- LSL:** An empty text box.
- USL:** An empty text box.
- UHL:** An empty text box.

At the bottom of the dialog are four buttons: "Save & Add Another", "Save & Close", "Cancel", and "Help".

4. The **Displayed Name** can now be changed as desired; for example, to accommodate Tall Man lettering or another unique name.
5. Select **Limited** from the **Rule Sets** drop-down list.
6. Enter the container volume amount (optional).
7. Select mL/hr and enter the values for soft and hard limits. (You must specify at least one limit.)
8. Click **Save & Add Another** or **Save & Close** to add the medication entry to the CCA.

## To add a Label Only rule set medication entry in a CCA:

1. Select the desired CCA as the Target List.



2. From the Target List, click **Add**.
3. Select the generic name for the medication entry from the drop-down list.

---

**Note:** Selecting a **Generic Name** from the drop-down list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and **Class ID** fields.

---



---

**Note:** The **Displayed Name** can be altered as desired, for example, to accommodate Tall Man lettering. The maximum number of characters in a **Displayed Name** is determined by how it is displayed on the infuser screen. Depending on character width, the maximum number of characters allowed in a medication name can vary from 17 to 29.

---



---

**Note:** If the desired generic name is not in the **Generic Name** drop-down list (or if no generic names appear in the list), you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

---

**Target List: Add Rule Set**

**Generic Name** (External ID) (Strength / Volume) {Dosage Form}:

DOPAMINE (1044) (200 MG / 5 ML) {VIAL}

Displayed Name: DOPAMINE      Therapeutic Class: BETA-ADRENERGIC AGONISTS\1      Class ID: 12:12.08

**Summary: DOPAMINE**

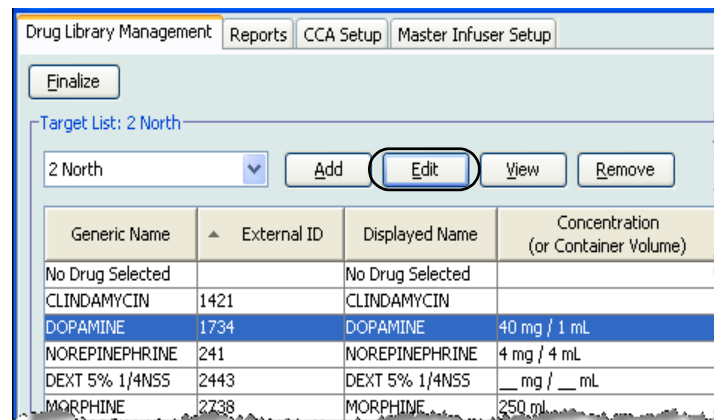
Rule Sets: Label Only

Save & Add Another    Save & Close    Cancel    Help

4. The **Displayed Name** can now be changed as desired, for example, to accommodate Tall Man lettering or another unique name.
5. Select **Label Only** from the **Rule Sets** drop-down list.
6. Click **Save & Add Another** or **Save & Close** to add the medication entry to the CCA.

### To edit a medication entry in a CCA:

1. Select the CCA containing the medication entry you want to edit from the drop-down list.

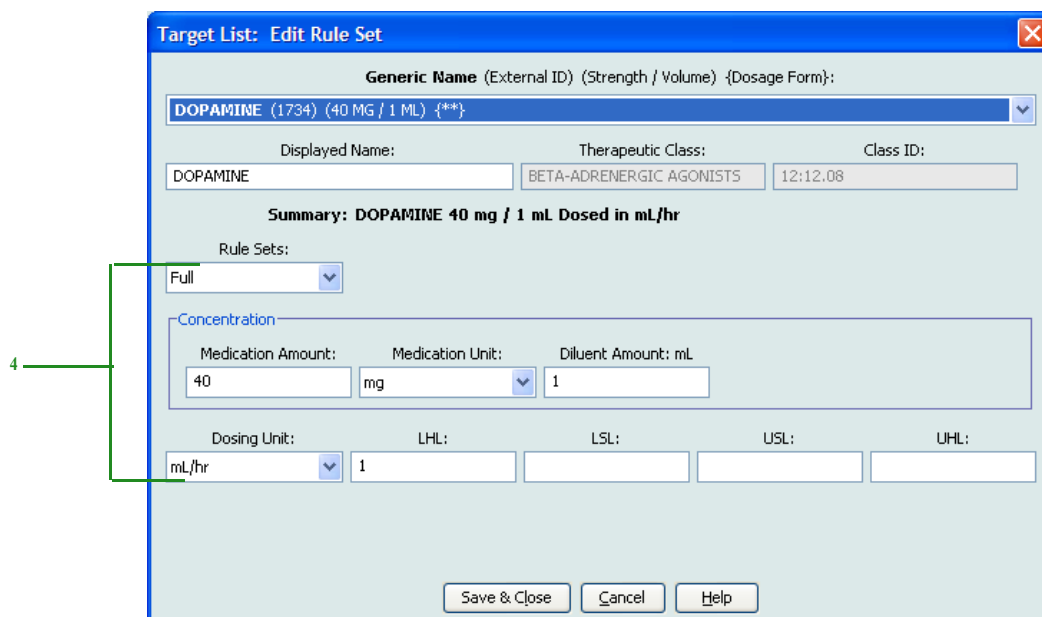


2. From the Target List, select the medication entry you want to edit.
3. Click **Edit**.

**Helpful Hint:** You can also double-click a medication entry to display the **Rule Set** dialog box.

4. Make changes as desired.

**Note:** You cannot change the **Therapeutic Class** or **Class ID** when editing a medication entry in a CCA.

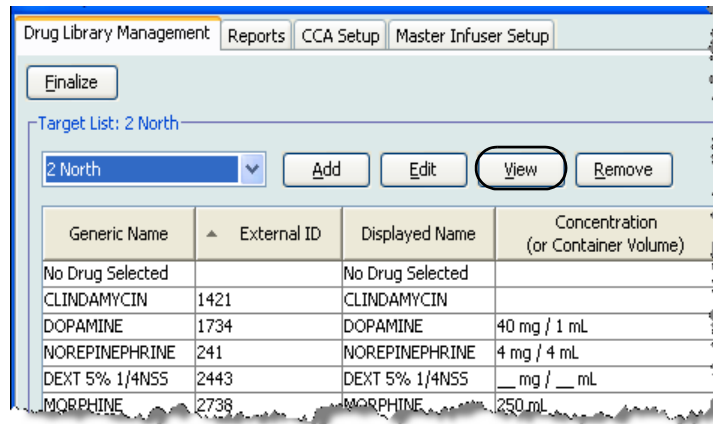


5. Click **Save & Close** to save changes.

**Note:** If the medication that is edited is assigned to only one CCA, the medication will also be edited in the Master Drug Formulary. If the medication that is edited is assigned to more than one CCA, a new medication will be created in the Master Drug Formulary.

**To view a medication entry in a CCA:**

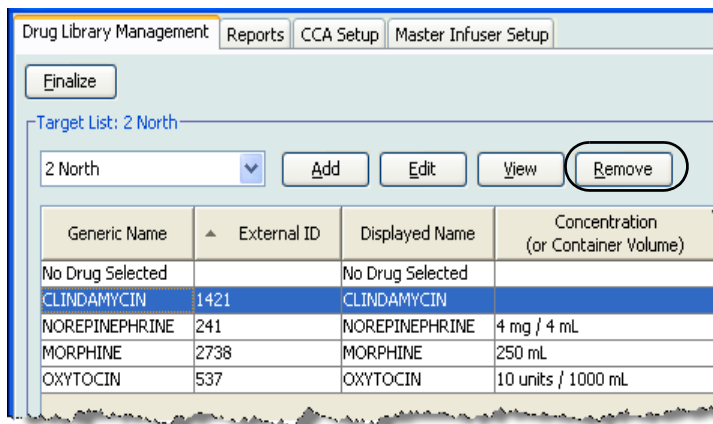
1. Select the CCA containing the medication entry you want to view from the Target List drop-down.



2. From the Target List, select the medication entry you want to view.
3. Click **View**.

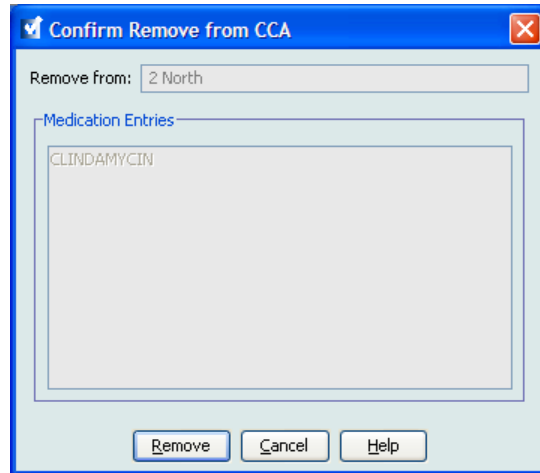
**To remove a medication entry from a CCA:**

1. Select the CCA containing the medication entry you want to remove from the Target List drop-down.



2. Select the medication entry you want to remove.
3. Click **Remove**.

4. At the confirmation to remove from the CCA, click **Remove**.

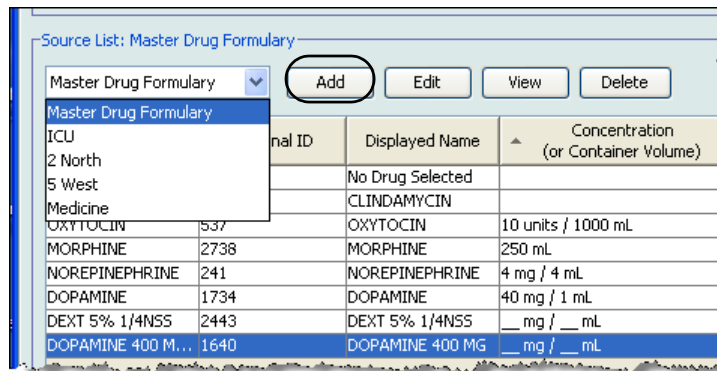


## Working with the Master Drug Formulary (Plum A+)

The Master Drug Formulary can contain medication entries not assigned to a CCA, to facilitate later use. The total number of medication entries in the Master Drug Formulary for the Plum A+ infuser cannot exceed 3,510.

### To add a medication entry with a Full rule set to the Master Drug Formulary:

1. Select **Master Drug Formulary** as the Source List.



2. From the Source List, click **Add**.
3. Select the Generic Name for the medication entry from the drop-down list.

---

**Note:** Selecting a **Generic Name** from the drop-down list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and **Class ID** fields.

---

**Note:** The **Displayed Name** field cannot be left blank. The maximum number of characters in a medication name is determined by how it is displayed on the infuser screen after it is downloaded. Depending on character width, the maximum number of characters allowed in a medication name can vary from 17 to 29.

---

**Note:** If the desired generic name is not in the **Generic Name** drop-down list, you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

---

4. Select **Full** (if not already selected) from the **Rule Sets** drop-down list.
5. Select the **Medication Unit** and enter a **Medication Amount** (optional) and **Diluent Amount** (optional).
6. Select the dosing unit and type the values for soft and hard limits. (You must specify at least one limit.)
7. Click **Save & Add Another** or **Save & Close** to add the medication entry to the Master Drug Formulary.

---

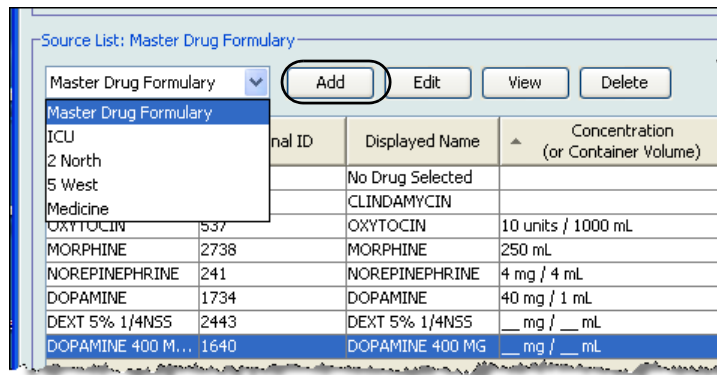
**Note:** When a medication entry is added to the Master Drug Formulary, it is not assigned to a CCA.

---



## To add a Limited rule set medication entry to the Master Drug Formulary:

1. Select **Master Drug Formulary** as the Source List.



2. From the Source List, click **Add**.
3. Select the Generic Name for the medication entry from the drop-down list.

---

**Note:** Selecting a **Generic Name** from the drop-down list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and **Class ID** fields.

---



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**Note:** The **Displayed Name** field cannot be left blank. The maximum number of characters in a displayed name is determined by how it is displayed on the infuser screen after it is downloaded. Depending on character width, the maximum number of characters allowed in a medication name can vary from 17 to 29.

---



---

**Note:** If the desired generic name is not in the **Generic Name** drop-down list (or if no generic names appear in the list), you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

---

4. Select **Limited** from the **Rule Sets** drop-down list.
5. Type the **Container Volume** amount (optional).
6. Select mL/hr and enter the values for soft and hard limits. (You must specify at least one limit.)
7. Click **Save & Add Another** or **Save & Close** to add the medication entry to the Master Drug Formulary.

**Note:** When a medication entry is added to the Master Drug Formulary, it is not assigned to a CCA.

### To add a Label Only medication entry to the Master Drug Formulary:

1. Select **Master Drug Formulary** as the Source List.

External ID	Displayed Name	Concentration (or Container Volume)
	No Drug Selected	
	CLINDAMYCIN	
OXYTOCIN 537	OXYTOCIN	10 units / 1000 mL
MORPHINE 2738	MORPHINE	250 mL
NOREPINEPHRINE 241	NOREPINEPHRINE	4 mg / 4 mL
DOPAMINE 1734	DOPAMINE	40 mg / 1 mL
DEXT 5% 1/4NSS 2443	DEXT 5% 1/4NSS	__ mg / __ mL

2. From the Source List, click **Add**.
3. Select the Generic Name for the medication entry from the drop-down list.

**Note:** Selecting a **Generic Name** from the drop-down list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and **Class ID** fields.

---

**Note:** The **Displayed Name** field cannot be left blank. The maximum number of characters in a displayed name is determined by how it is displayed on the infuser screen after it is downloaded. Depending on character width, the maximum number of characters allowed in a medication name can vary from 17 to 29.

---

**Note:** If the desired generic name is not in the **Generic Name** drop-down list (or if no generic names appear in the list), you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

---

The screenshot shows a software window titled "Source List: Add Rule Set". At the top, there is a dropdown menu for "Generic Name (External ID) (Strength / Volume) {Dosage Form}:" with the selected item "VANCOMYCIN (577) (500 MG / 10 ML) {VIAL}". Below this are three input fields: "Displayed Name:" containing "VANCOMYCIN", "Therapeutic Class:" containing "ANTIBACTERIALS MISCELLANEO", and "Class ID:" containing "08:12.28". A "Summary:" section displays "VANCOMYCIN". Under "Rule Sets:", a dropdown menu is set to "Label Only". At the bottom of the window are four buttons: "Save & Add Another", "Save & Close", "Cancel", and "Help".

4. Select **Label Only** from the **Rule Sets** drop-down list.
5. Click **Save & Add Another** or **Save & Close** to add the medication entry to the Master Drug Formulary.

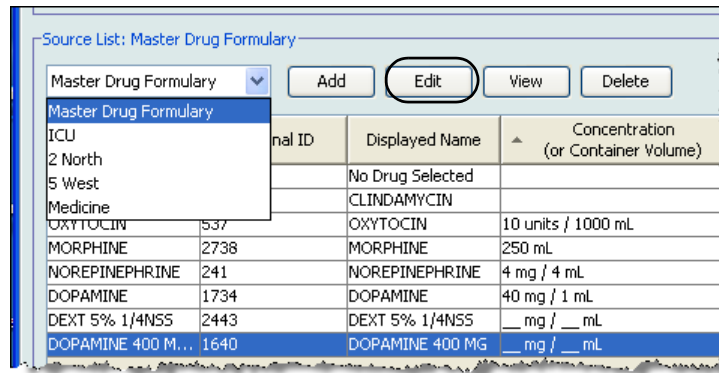
---

**Note:** When a medication entry is added to the Master Drug Formulary, it is not assigned to any CCA.

---

## To edit a medication entry in the Master Drug Formulary:

1. Select **Master Drug Formulary** as the Source List.



2. From the Source List, select the medication entry you want to edit.
3. Click **Edit**.

**Helpful Hint:** You can also double-click a medication entry to display the **Rule Set** dialog box.

4. Make changes as desired.

**Source List: Edit Rule Set**

Generic Name (External ID) (Strength / Volume) {Dosage Form}:  
 DOPAMINE 400 MG-D5W (1640) ( / 250 ML) {IV BAG}

Displayed Name: DOPamine      Therapeutic Class: BETA-ADRENERGIC AGONISTS      Class ID: 12:12.08

Summary: DOPamine 400 mg / 250 mL Dosed in mcg/kg/min

Rule Sets: Full

Concentration

Medication Amount: 400      Medication Unit: mg      Diluent Amount: mL: 250

Dosing Unit: mcg/kg/min      LHL: 1      LSL:      USL:      UHL:

Buttons: Save & Add Another, Save & Close, Cancel, Help

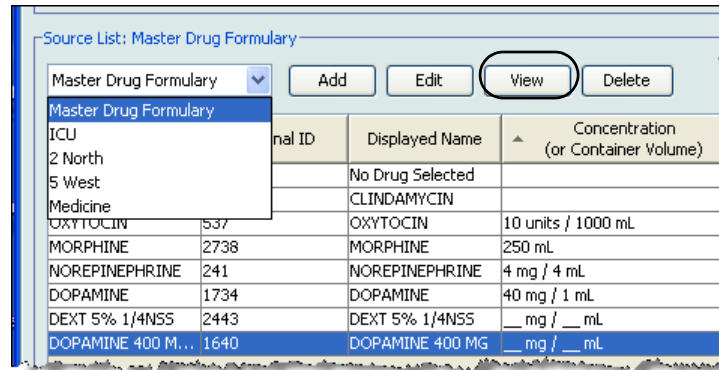
5. Click **Save & Close** to save changes.

**Important:** Changing the dosing unit or medication unit will erase all previously entered limits.

**Note:** When a medication entry is edited, the changes are reflected in the Master Drug Formulary and in all CCAs in which the medication is listed.

## To view a medication entry in the Master Drug Formulary:

1. Select **Master Drug Formulary** from the Source List.



2. From the Source List, select the medication entry you want to view
3. Click **View**.
4. Click **Close** to exit the screen.

**Generic Name** (External ID) (Strength / Volume) {Dosage Form}:  
 DOPAMINE 400 MG-D5W (1640) ( / 250 ML) {IV BAG}

Displayed Name: DOPAMINE 400 MG      Therapeutic Class: BETA-ADRENERGIC AGONISTS      Class ID: 12:12.08

**Summary: DOPAMINE 400 MG \_\_ mg / \_\_ mL Dosed in mcg/kg/min**

Rule Sets:  
 Full

**Concentration**

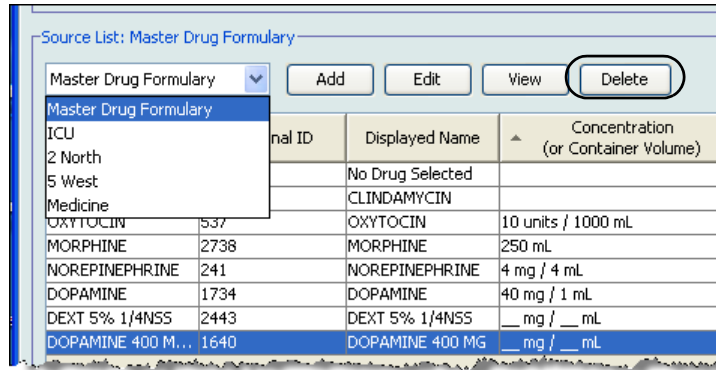
Medication Amount:      Medication Unit: mg      Diluent Amount: mL

Dosing Unit: mcg/kg/min      LHL: 1      LSL:      USL:      UHL:

Close      Help

## To delete a medication in the Master Drug Formulary:

1. Select **Master Drug Formulary** from the Source List.



2. From the Source List, select the medication entry you want to delete.

**Generic Name (External ID) (Strength / Volume) {Dosage Form}:**  
DOPAMINE 400 MG-D5W (1640) ( / 250 ML) {IV BAG}

Displayed Name: DOPAMINE 400 MG      Therapeutic Class: BETA-ADRENERGIC AGONISTS      Class ID: 12:12.08

**Summary: DOPAMINE 400 MG \_\_ mg / \_\_ mL Dosed in mcg/kg/min**

Rule Sets: Full

**Concentration**

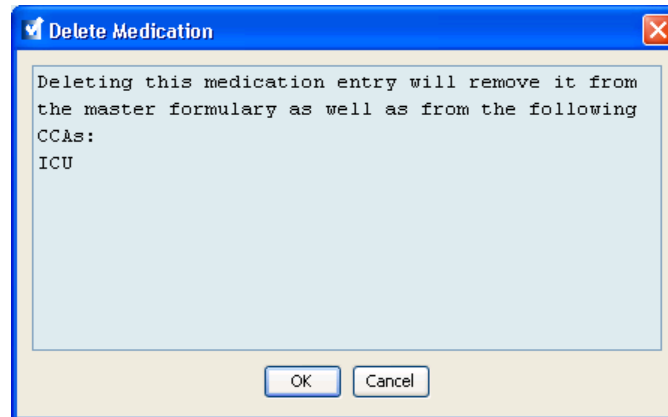
Medication Amount:      Medication Unit: mg      Diluent Amount: mL

Dosing Unit: mcg/kg/min      LHL: 1      LSL:      USL:      UHL:

**Delete**    **Cancel**    **Help**

3. Click **Delete**.

The following pop-up will display only if the medication entry is assigned to one or more CCA.



4. Click **OK**.

**To copy to Target CCA:**

1. Select a medication entry from the Master Drug Formulary.

**Note:** A Target List CCA must be selected before you can copy a medication entry to a Target CCA from the Master Drug Formulary.

2. Click **Copy to Target CCA**.

Source List: Master Drug Formulary

Master Drug Formulary

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Rule Set	Dosing Unit	Lower Hard Limit
No Drug Selected		No Drug Selected		Label Only		
CLINDAMYCIN	1421	CLINDAMYCIN		Label Only		
MORPHINE	2738	MORPHINE	250 mL	Limited	mL/hr	
NOREPINEPHRINE	241	NOREPINEPHRINE	4 mg / 4 mL	Full	mL/hr	
DOPAMINE	1734	DOPAMINE	40 mg / 1 mL	Full	mL/hr	1
DEXT 5% 1/4NSS	2443	DEXT 5% 1/4NSS	__ mg / __ mL	Full	mL/hr	

3. Click **Copy** on the **Confirm Copy to CCA** pop-up.

**Confirm Copy to CCA**

Copy from: Master Drug Formulary

Copy to: 2 East

Medication Entries

DOPAMINE 40 mg / 1 mL



# Chapter 10: LifeCare PCA Medication Entries

## Overview

In this chapter you will learn to define clinical decision rules for medications in the LifeCare PCA drug library.

ICU Medical MedNet Meds software enables you to customize dose rate limits for medications used in drug libraries. You can customize clinical decision rules for up to 18 different clinical care areas (CCAs) in the hospital and up to 25 medication entries in each CCA.

## Defining Rule Sets

Medication entries in the LifeCare PCA drug library can be created with specific dose rate limits. Selected fields are required and all other fields are optional.

The required fields for a LifeCare PCA medication entry are:

- Generic name
- Displayed name
- Medication amount and unit
- Diluent amount
- One bar code identifier

You can create medication entries by adding them to the Master Drug Formulary or by adding them directly to a CCA. Medication entries added to a CCA are automatically added to the Master Drug Formulary.

Within a CCA, no two medication entries may have exactly the same External ID and Concentration. Also, no two medication entries may have exactly the same Displayed Name and Concentration.

In the Master Drug Formulary, two medication entries may have the same displayed name, medication amount, medication unit, diluent amount, and dosing units as long as one or more of the limits for loading dose, PCA dose, continuous rate, and dose limit are different:

- Lower soft limit (LSL)
- Lower hard limit (LHL)
- Upper soft limit (USL)
- Upper hard limit (UHL)

## Setting Dose Limits

ICU Medical MedNet Meds allows you to define dose rate limits for the loading dose, PCA dose, continuous rate, and dose limit. It is important that you understand how the limits function so please read this section carefully.

You can define upper and lower soft and hard limits as part of the rule set for each medication entry you create in the library. As you configure the limits, the software enforces the following rules:

$$\text{Lower Hard Limit (LHL)} < \text{Lower Soft Limit (LSL)} \leq \text{Upper Soft Limit (USL)} < \text{Upper Hard Limit (UHL)}$$

*Soft limits* are dose rate limits that can be overridden when programming the infuser. When a value entered on the infuser is lower than the lower soft limit or higher than the upper soft limit, the infuser displays a soft limit override confirmation message. The infuser records soft limit alerts and the users' responses to the alerts to its history logs.

For example, if the upper soft limit is set to 1.8 mg and the clinician enters 2 mg, the infuser will display a soft limit override alert. This alert notifies the clinician that the entry is outside the range of the soft limits set for that medication in the drug library. The clinician can choose to continue programming using the override, or cancel the override and edit the value. The alert and the clinician's response are recorded in the infuser's history log.

*Hard limits* are dose rate limits that cannot be overridden; the infuser cannot be programmed with a rate that is lower than a lower hard limit or higher than an upper hard limit. Hard limit alerts are recorded in the infuser's history log.

If a Lower Hard Limit (LHL) or an Upper Hard Limit (UHL) are not specified in the rule set, the prescription drug limits will function as the LHL or UHL.

# Medication Entry Rules and Conventions

The ICU Medical MedNet Meds software uses the following conventions for the LifeCare PCA medication entries:

- Entry of upper hard and soft limits and lower hard and soft limits is optional, not required.
- You can create medication entries by adding them to the Master Drug Formulary or by adding them directly to a CCA. Medication entries added to a CCA Target List are automatically added to the Master Drug Formulary List.
- “Validity” messages appear in red at the bottom of the Rule Set window. When you enter a value that is not allowed, the message specifies the defined range for the field, or the reason the value is not permitted.
- Displayed Name cannot contain comma (,) or double-quote (“) characters. Most other special characters, as well as all alphabetic and numeric characters, are acceptable.
- Once you select a medication unit, the dosing unit field will display only the enabled unit type.
- The software prohibits invalid numeric entries and signals such with an audible “beep.”
- You may use the vertical and horizontal scroll bars to navigate to an entry.
- If you do not select or populate a required field, an error message appears.
- When you highlight an entry on the Drug Library Management list view, buttons or features that are not allowed appear as “grayed” or disabled.
- When you add a new medication in the Generic Name field of the rule set window, you may search for a medication by typing the first few characters of its generic name. The drop-down list will navigate to show any matching medications.

# The LifeCare PCA Medication Rule Set

The Rule Set window, seen below, enables you to configure a medication entry for the LifeCare PCA drug library.

Target List: Add Rule Set
✕

**Generic Name** (External ID) (Strength / Volume) (Dosage Form):

MORPHINE PCA (594) (30 MG / 30 ML) {VIAL}
Select

Displayed Name: MORPHINE PCA	Therapeutic Class: OPIATE AGONISTS	Class ID: 28:08.08
---------------------------------	---------------------------------------	-----------------------

**Summary: MORPHINE PCA 30 mg / 30 mL Dosed in mg**

Concentration

Medication Amount: 30	Medication Unit: mg	Diluent Amount: mL 30	Displayed Concentration: 1 mg/mL
--------------------------	------------------------	--------------------------	-------------------------------------

Bar Codes

Bar Code 1: <input style="width: 90%;" type="text"/>	Bar Code 2: <input style="width: 90%;" type="text"/>	Bar Code 3: <input style="width: 90%;" type="text"/>	Bar Code 4: <input style="width: 90%;" type="text"/>	Bar Code 5: <input style="width: 90%;" type="text"/>
---	---	---	---	---

Loading Dose/Supplemental Loading Dose [0.1 - 10 mg]

Dosing Unit: mg	LHL: <input style="width: 90%;" type="text"/>	LSL: <input style="width: 90%;" type="text"/>	USL: <input style="width: 90%;" type="text"/>	UHL: <input style="width: 90%;" type="text"/>
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PCA Dose [0.1 - 5 mg]

Dosing Unit: mg	LHL: <input style="width: 90%;" type="text"/>	LSL: <input style="width: 90%;" type="text"/>	USL: <input style="width: 90%;" type="text"/>	UHL: <input style="width: 90%;" type="text"/>	Lockout Intervals	Min. 5	Max. 120
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Continuous Rate [0.1 - 20 mg/hr]

Dosing Unit/hr mg/hr	LHL: <input style="width: 90%;" type="text"/>	LSL: <input style="width: 90%;" type="text"/>	USL: <input style="width: 90%;" type="text"/>	UHL: <input style="width: 90%;" type="text"/>
-------------------------	--	--	--	--

Dose Limit [0.1 - 80 mg]

Dosing Unit mg	Time Interval: 4-hours	USL: <input style="width: 90%;" type="text"/>	UHL: <input style="width: 90%;" type="text"/>
-------------------	---------------------------	--	--

Please specify a Bar Code.

Save & Add Another
Save & Close
Cancel
Help

## Rule Set Fields

The following table lists the fields, a brief description, and allowed value range for the infuser.

Field	Description	Allowable Range
Generic Name	The medication name from your Medication List. It is selected from the drop-down list and displays the External ID (the hospital's identifier for a medication). Strength/Volume and Dosage Form display if defined in the Medication List.	Not editable in the Rule Set
Displayed Name	The name that will be displayed on the infuser.	<ul style="list-style-type: none"> <li>Varies depending on the character width</li> <li>Cannot be blank</li> </ul> Displayed Name cannot contain comma (,) or double-quote (") characters. All alphabetic and numeric characters are acceptable.
Therapeutic Class	The therapeutic class assigned to the medication entry.	Not editable in the Rule Set
Class ID	The ID of the therapeutic class assigned to the medication entry.	Not editable in the Rule Set
Medication Amount	Allows you to enter the medication amount in the units selected.	<ul style="list-style-type: none"> <li>For mg: 0.1–999.9</li> <li>For mcg: 1–15,000</li> </ul>
Medication Unit	Allows you to select the unit of measure for your medication amount.	mcg or mg
Diluent Amount	Allows you to set the total volume of the PCA vial.	1–30 mL
Displayed Concentration	The concentration of medication per mL.	Calculated by the software as Medication Amount divided by Diluent Amount
Bar Codes	Allows you to enter up to five (5) different bar codes for each medication entry.	<ul style="list-style-type: none"> <li>Numeric or alphanumeric</li> <li>Each bar code must be unique.</li> <li>At least one bar code is required.</li> <li>The printed bar code length must be less than 4.2 cm (about 16-17 characters in a typical font).</li> <li>Enter the bar code value without any space or punctuation characters such as parentheses.</li> </ul>
Dosing Unit	The dosing unit for the medication.	The dosing unit field automatically populates once the medication unit is selected
Dose Limit	Allows you to specify the amount of medication that can be administered via PCA dose and continuous delivery in a rolling time period.	<ul style="list-style-type: none"> <li>Choices include one (1), four (4), six (6), or twelve (12) hours.</li> <li>Default time interval = four (4) hours (required).</li> </ul>

Field	Description	Allowable Range
LHL, LSL, USL, UHL	<p>Lower hard limit, lower soft limit, upper soft limit, upper hard limit.</p> <p>Allows you to set the upper and/or lower limits for loading dose, PCA dose, continuous rate, and dose limit for the selected medication.</p> <p>Upper Soft Limit (USL) and Upper Hard Limit (UHL) entries are optional.</p>	<p>Loading dose</p> <ul style="list-style-type: none"> <li>-From 0.1 x concentration to 10 x concentration</li> <li>-Not less than 0.1 mg or 1 mcg</li> <li>-Not more than 500 mg or 5000 mcg</li> </ul> <p>PCA dose</p> <ul style="list-style-type: none"> <li>-From 0.1 x concentration to 5 x concentration</li> <li>-Not less than 0.1 mg or 1 mcg</li> <li>-Not more than 250 mg or 2500 mcg</li> </ul> <p>Continuous rate</p> <ul style="list-style-type: none"> <li>-From 0.1 x concentration to 20 x concentration</li> <li>-Not less than 0.1 mg/hr or 1 mcg/hr</li> <li>-Not more than 999.9 mg/hr or 9999 mcg/hr</li> <li>-Not more than 250 mL/hr</li> </ul> <p>Dose limit (Upper Soft and Hard Limit only)</p> <ul style="list-style-type: none"> <li>-From 0.1 x concentration to (20 x concentration x period)</li> <li>-Not less than 0.1 mg or 1 mcg</li> <li>-Not more than 999.9 mg or 9999 mcg</li> <li>-Dose limit period is 1 hour, 4 hours, 6 hours, or 12 hours</li> </ul>
Lockout Interval	Determines the minimum and maximum amount of time between PCA and/or loading doses.	Limited to the minimum and maximum values set for the CCA associated with the medication entry

Note: Refer to the LifeCare PCA System Operating Manual for complete details and allowable range.

## LifeCare PCA Prescription Delivery Limits

The LifeCare PCA infuser enforces Prescription Delivery limits for Loading Dose, PCA Dose, Continuous Rate, and Dose Limit. The exact limits enforced depend on the concentration of the medication. See the **LifeCare PCA System Operating Manual** for additional information.

**Note:** Drug and concentration selections are rounded up to the nearest tenth of a digit for mg/mL values or to the nearest digit for mcg/mL values. Minimum delivery rate is 0.1 mL/hr for concentrations between 0.1 and 1.0 mg/mL.

Concentration (C)	Loading Dose	PCA Dose	Continuous Rate (per hr)	1 Hour Limit	4 Hour Limit	6 Hour Limit	12 Hour Limit
0.1–50 mg/mL 1-500 mcg/mL	[0.1-10] x C	[0.1-5] x C	[0.1-20] x C	[0.1-20] x C	[0.1-80] x C	[0.1-120] x C	[0.1-240] x C

The Rule Set window displays the Prescription Delivery Limits next to each rule set type (Loading Dose, PCA Dose, Continuous Rate, and Dose Limit) once a medication has been selected and its concentration has been defined.

These limits are enforced by the infuser as hard limits, regardless of whether hard limits have been explicitly defined in ICU Medical MedNet Meds. ICU Medical MedNet Meds prevents the user from entering a hard limit value which will violate these limits.

**Note:** ICU Medical MedNet Reports will contain data for hard limits alerts encountered by the user regardless of whether the limit is one that is explicitly defined in ICU Medical MedNet Meds or one that is enforced by the infuser.

## Navigate to the LifeCare PCA Rule Set Window

The procedures in this chapter begin at the Rule Set window. To navigate to the Rule Set window, follow the path listed below:

*Library Directory -> Drug Library Worksheet - LifeCare Infuser Type -> Drug Library Management view*

## Step-by-step Procedures

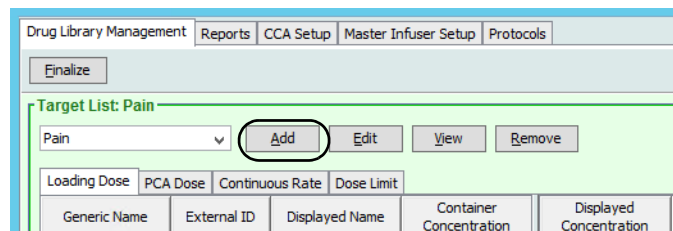
The following section provides step-by-step procedures that will enable you to create and manage medication entries. In this section you will learn to do the following:

- Add a medication entry in a CCA
- Edit a medication entry in a CCA
- View a medication entry in a CCA
- Remove a medication entry from a CCA
- Add a medication entry in the Master Drug Formulary
- Edit a medication entry in the Master Drug Formulary
- View a medication entry in the Master Drug Formulary
- Delete a medication entry from the Master Drug Formulary
- Copy a medication entry from the Master Drug Formulary to a Target CCA

To display the **Rule Set** window, open a Worksheet and click **Add** or **Edit**. (For instructions on opening a Worksheet, see [Chapter 5: The Library Directory on page 35](#).)

### To add a medication entry in a CCA:

1. Select the desired CCA as the Target List.
2. From the Target List, click **Add**.



### 3. Highlight a medication from the **Select a Medication** screen.

**Select a Medication**

All Medications

Show generic names beginning with

Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form
FENTANYL	FENTANYL	2861	2500 MCG	50 ML	VIAL
FENTANYL	FENTANYL	1142	250 MCG	5 ML	AMP
FENTANYL	FENTANYL	1141	100 MCG	2 ML	AMP
FENTANYL	FENTANYL	1152	50 MCG	1 ML	**
FENTANYL (ANESTHESIA S...	FENTANYL (ANESTHESIA S...	2418	50 MCG	1 ML	VIAL
FENTANYL 10 MCG/ML-NSS	FENTANYL 10 MCG/ML-NSS	1590		250 ML	IV BAG
<b>FENTANYL PCA (10 MCG/ML)</b>	<b>FENTANYL PCA (10 MCG/ML)</b>	<b>3311</b>	<b>300 MCG</b>	<b>30 ML</b>	<b>VIAL</b>
FLOXURIDINE	FUDR	2138	100 MG	1 ML	**
FLUCONAZOLE 200 MG-NSS	DIFLUCAN (EQ) 200 MG-NSS	3268		100 ML	IV BAG
FLUCONAZOLE 400 MG-NSS	FLUCONAZOLE 400 MG-NSS	3535		200 ML	IV BAG

Selected Medication

**Generic Name** (External ID) (Strength / Volume) (Dosage Form):  
 FENTANYL PCA (10 MCG/ML) (3311) (300 MCG / 30 ML) (VIAL)

Displayed Name: FENTANYL PCA

**Note:** Selecting a **Generic Name** from the medication list automatically populates the **Displayed Name**, **External ID**, the **Therapeutic Class**, and the **Class ID** fields.

### 4. Click **Select Medication** to access the Rule Set.

**Target List: Add Rule Set**

**Generic Name** (External ID) (Strength / Volume) (Dosage Form):  
 MORPHINE PCA (594) (30 MG / 30 ML) (VIAL)

Displayed Name: MORPHINE PCA Therapeutic Class: OPIATE AGONISTS Class ID: 28:08.08

**Summary: MORPHINE PCA 30 mg / 30 mL Dosed in mg**

Concentration  
 Medication Amount: 30 Medication Unit: mg Diluent Amount: mL 30 Displayed Concentration: 1 mg/mL

Bar Codes  
 Bar Code 1: Bar Code 2: Bar Code 3: Bar Code 4: Bar Code 5:

Loading Dose/Supplemental Loading Dose [0.1 - 10 mg]  
 Dosing Unit: mg LHL: LSL: USL: UHL:

PCA Dose [0.1 - 5 mg]  
 Dosing Unit: mg LHL: LSL: USL: UHL: Lockout Intervals: 5 Min. 120 Max.

Continuous Rate [0.1 - 20 mg/hr]  
 Dosing Unit/hr: mg/hr LHL: LSL: USL: UHL:

Dose Limit [0.1 - 80 mg]  
 Dosing Unit: mg Time Interval: 4-hours LHL: LSL: USL: UHL:

Please specify a Bar Code.

**Note:** The **Displayed Name** can be edited once populated. The maximum number of characters in the **Displayed Name** is determined by how it is displayed on the infuser screen. Depending on character width, the maximum number of characters allowed in the displayed name can vary from 10 to 16.



- You can edit the Medication Amount, the Medication Unit, and the Diluent Amount. The Displayed Concentration is calculated based on the data entered into these fields.

**Note:** The dosing units for Loading Dose, PCA Dose, Continuous Rate, and Dose Limit automatically populate after the medication unit is selected.

- Enter the bar codes for the medication. At least one bar code is required to save the medication entry.

**Note:** You can use a PC-based bar code scanner (one that attaches to the PC via a “keyboard wedge”) in order to populate the bar code value. To do this, select a bar code field and scan the bar code on the medication vial. The scanner will read the medication bar code and populate the bar code field with the scanned value.

- Enter soft and hard limits for Loading Dose (optional).
- Enter soft and hard limits for PCA Dose (optional).

**Note:** The minimum and maximum values for the lockout intervals automatically populate based on the range defined for the CCA.

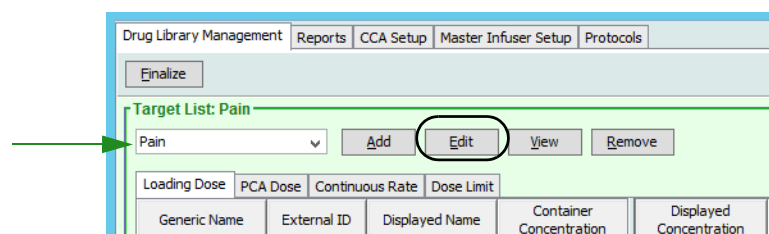
- Enter soft and hard limits for Continuous Rate (optional).
- Enter the time interval and upper soft or hard limits for Dose Limit (optional).

**Note:** When a soft or hard Dose Limit is entered, the clinician MUST always enter a Dose Limit on the infuser during programming.

- Click **Save & Add Another** or **Save & Close** to add the medication entry to the CCA.

### To edit a medication entry in a CCA:

- Select the CCA containing the medication entry you want to edit from the **Target List** drop-down.
- From the Target List, select the medication entry you want to edit.



- Click **Edit**.

**Helpful Hint:** You can also double-click a medication entry to display the **Rule Set** dialog box.

**Note:** A Medication Rule Set can be edited once a medication is assigned to a protocol without having to delete the protocol. However, if the rule set is being used by one or more protocols; medication, concentration, and time interval information cannot be edited.

4. Make changes as needed.

**Note:** You cannot change the Therapeutic class or the Class ID when editing a medication entry in a CCA.

5. Click **Save & Close** to save your changes.

**Note:** If the medication is assigned to another CCA, a new medication is created in the Master Drug Formulary. If the medication is not assigned to another CCA, the changes are applied to both the medication in the CCA and the medication in the Master Drug Formulary.

**Target List: Edit Rule Set**

Generic Name (External ID) (Strength / Volume) (Dosage Form):  
 FentaNYL Citrate-NaCl (6510002512) (250 mcg / 25 mL) (PCA Syringe) Select

Displayed Name: FentaNYL Citrat  
 Therapeutic Class: OPIATE AGONISTS  
 Class ID: 28080800

**Summary: FentaNYL Citrat 250 mcg / 5 mL Dosed in mcg**

**Concentration**  
 Medication Amount: 250  
 Medication Unit: mcg  
 Diluent Amount: mL: 5  
 Displayed Concentration: 50 mcg/mL

**Bar Codes**  
 Bar Code 1: 751  
 Bar Code 2:  
 Bar Code 3:  
 Bar Code 4:  
 Bar Code 5:

**Loading Dose/Supplemental Loading Dose [5 - 500 mcg]**  
 Dosing Unit: mcg  
 LHL:  
 LSL:  
 USL:  
 UHL:

**PCA Dose [5 - 250 mcg]**  
 Dosing Unit: mcg  
 LHL:  
 LSL:  
 USL:  
 UHL:  
 Lockout Intervals: 5  
 Min.: 120  
 Max.:

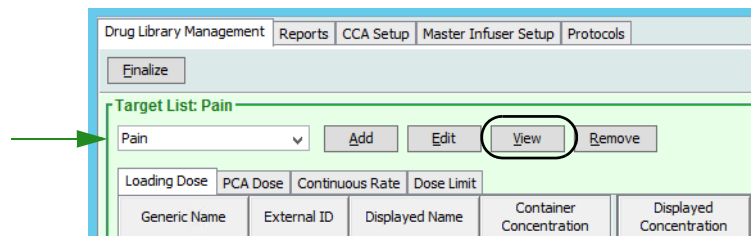
**Continuous Rate [5 - 1000 mcg/hr]**  
 Dosing Unit/hr: mcg/hr  
 LHL:  
 LSL:  
 USL:  
 UHL:

**Dose Limit [5 - 4000 mcg]**  
 Dosing Unit: mcg  
 Time Interval: 4-hours  
 USL:  
 UHL:

Save & Close Cancel Help

## To view a medication entry in a CCA:

1. Select the CCA containing the medication entry you want to view from the **Target List** drop-down.



2. Select a medication.
3. Click **View**.
4. Click **Close** to exit the screen.

**Target List: View Rule Set** x

**Generic Name** (External ID) (Strength / Volume) (Dosage Form):

FENTANYL PCA (10 MCG/ML) (3311) (300 MCG / 30 ML) {VIAL} Select

Displayed Name: FENTANYL PCA (1)      Therapeutic Class: OPIATE AGONISTS      Class ID: 28:08.08

**Summary: FENTANYL PCA (1 300 mcg / 30 mL Dosed in mcg)**

**Concentration**

Medication Amount: 300      Medication Unit: mcg      Diluent Amount: mL: 30      Displayed Concentration: 10 mcg/mL

**Bar Codes**

Bar Code 1: 1259      Bar Code 2:      Bar Code 3:      Bar Code 4:      Bar Code 5:

**Loading Dose/Supplemental Loading Dose [1 - 100 mcg]**

Dosing Unit: mcg      LHL:      LSL:      USL:      UHL:

**PCA Dose [1 - 50 mcg]**

Dosing Unit: mcg      LHL:      LSL:      USL:      UHL:      Lockout Intervals: 5      Min.: 120      Max.:

**Continuous Rate [1 - 200 mcg/hr]**

Dosing Unit/hr: mcg/hr      LHL:      LSL:      USL:      UHL:

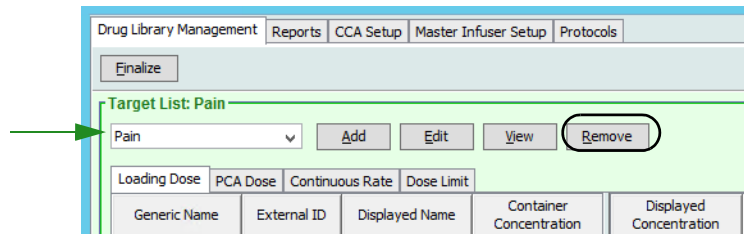
**Dose Limit [1 - 800 mcg]**

Dosing Unit: mcg      Time Interval: 4-hours      USL:      UHL:

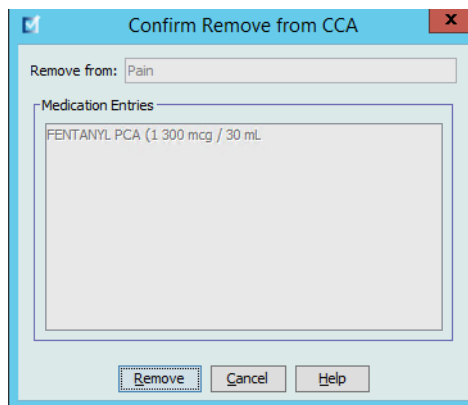
Close      Help

### To remove a medication entry from a CCA:

1. Select the CCA containing the medication entry you want to remove from the **Target List** drop-down.



2. Select a medication.
3. Click **Remove**.



4. Click **Remove** on the **Confirm Remove from CCA** pop-up.

---

**Note:** The medication entry is not removed from the Master Drug Formulary.

---

## Working with the Master Drug Formulary

The Master Drug Formulary can contain medication entries not assigned to a CCA, to facilitate later use. The maximum number of medication entries in the Master Drug Formulary is 585, of which 100 unique medication entries can be assigned to CCAs. For example, *Morphine 1 mg/mL* would be considered as one unique medication entry whether it is assigned to one or more CCAs.

**Note:** Refer to [Rule Set Fields](#) on page 189 for information on allowable ranges.

### To add a medication entry in the Master Drug Formulary:

1. Select **Master Drug Formulary** as the Source List.
2. From the Source List, click **Add**.

Generic Name	External ID	Displayed Name	Container Concentration	Displayed Concentration	Dosing Unit	Lower Hard Limit	Lower Soft Limit	Upper Soft Limit
FENTANYL PCA (1...	3311	FENTANYL PCA (1	300 mcg / 30 mL	10 mcg/mL	mcg			

3. Highlight a medication from the **Select a Medication** screen.

Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form
MORPHINE	MORPHINE	1131	10 MG	1 ML	VIAL
MORPHINE	MORPHINE	2738	25 MG	1 ML	**
MORPHINE (ANESTHESIA S...	MORPHINE (ANESTHESIA S...	2419	1 MG	0.1 ML	VIAL
MORPHINE HIGH CONC PCA	MORPHINE HIGH CONC PCA	2561	150 MG	30 ML	VIAL
MORPHINE PCA	MORPHINE PCA	594	30 MG	30 ML	VIAL
MORPHINE PF	MORPHINE PF	2556	1 MG	1 ML	**
MORPHINE PF	MORPHINE PF	1140	10 MG	10 ML	AMP
MORPHINE PF (INFUMORPH)	INFUMORPH	3883	200 MG	20 ML	AMP
MORPHINE PF (INFUMORPH)	INFUMORPH	3866	500 MG	20 ML	AMP
MORRHUATE SODIUM INJ	MORRHUATE SODIUM INJ	1049	50 MG	1 ML	30 ML

Selected Medication

**Generic Name** (External ID) (Strength / Volume) (Dosage Form):  
MORPHINE PCA (594) (30 MG / 30 ML) (VIAL)

Displayed Name: MORPHINE PCA

**Note:** Selecting a **Generic Name** from the medication list automatically populates the **Displayed Name**, **External ID**, the **Therapeutic Class**, and the **Class ID** fields.

4. Click **Select Medication** to access the Rule Set.

**Note:** Selecting a **Generic Name** from the medication list automatically populates the **Displayed Name**, **External ID**, the **Therapeutic Class**, and the **Class ID** fields.

Source List: Add Rule Set

Generic Name (External ID) (Strength / Volume) (Dosage Form):  
 MORPHINE PCA (594) (30 MG / 30 ML) (VIAL) Select

Displayed Name: MORPHINE PCA    Therapeutic Class: OPIATE AGONISTS    Class ID: 28:08.08

Summary: MORPHINE PCA 30 mg / 30 mL Dosed in mg

Concentration

Medication Amount: 30    Medication Unit: mg    Diluent Amount: mL: 30    Displayed Concentration: 1 mg/mL

Bar Codes

Bar Code 1: 6452    Bar Code 2:    Bar Code 3:    Bar Code 4:    Bar Code 5:

Loading Dose/Supplemental Loading Dose [0.1 - 10 mg]

Dosing Unit: mg    LHL:    LSL:    USL:    UHL:

PCA Dose [0.1 - 5 mg]

Dosing Unit: mg    LHL:    LSL:    USL:    UHL:    Lockout Intervals: 5    Min: 120    Max:

Continuous Rate [0.1 - 20 mg/hr]

Dosing Unit/hr: mg/hr    LHL:    LSL:    USL:    UHL:

Dose Limit [0.1 - 80 mg]

Dosing Unit: mg    Time Interval: 4-hours    USL:    UHL:

Save & Add Another    Save & Close    Cancel    Help

**Note:** The **Displayed Name** can be edited once populated. The maximum number of characters in a **Displayed Name** is determined by how it is displayed on the infuser screen. Depending on character width, the maximum number of characters allowed in a medication entry can vary from 10 to 16.

- Enter the Medication Amount, select the Medication Unit, and enter the Diluent Amount. The displayed concentration is calculated based on the data entered into these fields.

**Note:** The dosing units for Loading Dose, PCA Dose, Continuous Rate, and Dose Limit automatically populate after the medication unit is selected.

- Enter the bar codes for the medication. At least one bar code is required to save the medication entry.
- Enter soft and hard limits for Loading Dose (optional).
- Enter soft and hard limits for PCA Dose (optional).

**Note:** The minimum and maximum values for the lockout intervals automatically populate based on the range defined for the CCA.

- Enter soft and hard limits for Continuous Rate (optional).
- Enter the time interval and soft and hard limits for Dose Limit.

**Note:** The clinician is prompted on the infuser to enter a **Dose Limit** for the time interval selected.

11. Click **Save & Add Another** or **Save & Close** to add the medication entry to the CCA.

**Note:** When a medication entry is added to the Master Drug Formulary, it is not assigned to a CCA.

### To edit a medication entry in the Master Drug Formulary:

1. Select **Master Drug Formulary** from the Source List.
2. From the Source List, select the medication entry you want to edit.
3. Click **Edit**.

The screenshot shows the 'Source List: Master Drug Formulary' interface. At the top, there is a dropdown menu set to 'Master Drug Formulary' and buttons for 'Add', 'Edit', 'View', 'Delete', and 'Copy to Target CCA'. Below this is a table with columns: 'Loading Dose', 'PCA Dose', 'Continuous Rate', and 'Dose Limit'. The main table has columns: 'Generic Name', 'External ID', 'Displayed Name', 'Container Concentration', 'Displayed Concentration', 'Dosing Unit', 'Lower Hard Limit', 'Lower Soft Limit', and 'Upper Soft Limit'. A single entry is visible: 'FENTANYL PCA (1... 3311', 'FENTANYL PCA (1', '300 mcg / 30 mL', '10 mcg/mL', 'mcg'. The 'Edit' button is circled in red. At the bottom, there are fields for 'Library Name: PCA', 'Infuser: LifeCare PCA 5.x/7.x', 'Status: Worksheet', and 'Modified: May 10 2015'.

**Helpful Hint:** You can also double-click a medication entry to display the **Rule Set** dialog box.

## 4. Make any desired changes.

**Note:** You cannot change the Therapeutic class or the Class ID when editing a medication entry in the Master Drug Formulary.

5. Click **Save & Close** to save your changes.

**Source List: Edit Rule Set**

**Generic Name** (External ID) (Strength / Volume) (Dosage Form):  
 FENTANYL PCA (10 MCG/ML) (3311) (300 MCG / 30 ML) (VIAL) Select

Displayed Name: FENTANYL PCA (1) Therapeutic Class: OPIATE AGONISTS Class ID: 28:08.08

**Summary: FENTANYL PCA (1 300 mcg / 30 mL Dosed in mcg)**

**Concentration**  
 Medication Amount: 300 Medication Unit: mcg Diluent Amount: mL: 30 Displayed Concentration: 10 mcg/mL

**Bar Codes**  
 Bar Code 1: 1259 Bar Code 2: Bar Code 3: Bar Code 4: Bar Code 5:

**Loading Dose/Supplemental Loading Dose [1 - 100 mcg]**  
 Dosing Unit: mcg LHL: LSL: USL: UHL:

**PCA Dose [1 - 50 mcg]**  
 Dosing Unit: mcg LHL: LSL: USL: UHL: Lockout Intervals: Min. 5 Max. 120

**Continuous Rate [1 - 200 mcg/hr]**  
 Dosing Unit/hr: mcg/hr LHL: LSL: USL: UHL:

**Dose Limit [1 - 800 mcg]**  
 Dosing Unit: mcg Time Interval: 4-hours USL: UHL:

**Save & Close** Cancel Help

**Note:** When a medication entry is edited, the changes are reflected in the Master Drug Formulary and in all CCAs in which the medication is listed.

### To view a medication entry in the Master Drug Formulary:

1. Select **Master Drug Formulary** from the Source List.

**Source List: Master Drug Formulary**

Master Drug Formulary Add Edit View Delete Copy to Target CCA

Loading Dose PCA Dose Continuous Rate Dose Limit

Generic Name	External ID	Displayed Name	Container Concentration	Displayed Concentration	Dosing Unit	Lower Hard Limit	Lower Soft Limit	Upper Soft Limit
FENTANYL PCA (1...	3311	FENTANYL PCA (1	300 mcg / 30 mL	10 mcg/mL	mcg			

Library Name: PCA Infuser: LifeCare PCA 5.x/7.x Status: Worksheet Modified: May 10 2016



2. From the Source List, select the medication entry you want to view.
3. Click **View**.
4. Click **Close** to exit the screen.

Source List: View Rule Set

**Generic Name** (External ID) (Strength / Volume) (Dosage Form):

FENTANYL PCA (10 MCG/ML) (3311) (300 MCG / 30 ML) (VIAL) Select

Displayed Name: FENTANYL PCA (1)    Therapeutic Class: OPIATE AGONISTS    Class ID: 28:08.08

**Summary: FENTANYL PCA (1 300 mcg / 30 mL Dosed in mcg)**

**Concentration**

Medication Amount: 300    Medication Unit: mcg    Diluent Amount: mL: 30    Displayed Concentration: 10 mcg/mL

**Bar Codes**

Bar Code 1: 1259    Bar Code 2:    Bar Code 3:    Bar Code 4:    Bar Code 5:

**Loading Dose/Supplemental Loading Dose [1 - 100 mcg]**

Dosing Unit: mcg    LHL:    LSL:    USL:    UHL:

**PCA Dose [1 - 50 mcg]**

Dosing Unit: mcg    LHL:    LSL:    USL:    UHL:    Lockout Intervals: 5    Min. 5    Max. 120

**Continuous Rate [1 - 200 mcg/hr]**

Dosing Unit/hr: mcg/hr    LHL:    LSL:    USL:    UHL:

**Dose Limit [1 - 800 mcg]**

Dosing Unit: mcg    Time Interval: 4-hours    USL:    UHL:

Close Help

### To delete a medication entry from the Master Drug Formulary:

1. Select **Master Drug Formulary** from the Source List.

Source List: Master Drug Formulary

Master Drug Formulary Add Edit View **Delete** Copy to Target CCA

Generic Name	External ID	Displayed Name	Container Concentration	Displayed Concentration	Dosing Unit	Lower Hard Limit	Lower Soft Limit	Upper Soft Limit
FENTANYL PCA (1...	3311	FENTANYL PCA (1	300 mcg / 30 mL	10 mcg/mL	mcg			

Library Name: PCA    Infuser: LifeCare PCA 5.x/7.x    Status: Worksheet    Modified: May 10 2015

2. From the Source List, select the medication entry you want to delete.

3. Click **Delete**.

Source List: Delete Rule Set

Generic Name (External ID) (Strength / Volume) (Dosage Form):  
 FENTANYL PCA (10 MCG/ML) (3311) (300 MCG / 30 ML) (VIAL) Select

Displayed Name: FENTANYL PCA (1) Therapeutic Class: OPIATE AGONISTS Class ID: 28:08.08

Summary: FENTANYL PCA (1 300 mcg / 30 mL Dosed in mcg)

Concentration  
 Medication Amount: 300 Medication Unit: mcg Diluent Amount: mL: 30 Displayed Concentration: 10 mcg/mL

Bar Codes  
 Bar Code 1: 1259 Bar Code 2: Bar Code 3: Bar Code 4: Bar Code 5:

Loading Dose/Supplemental Loading Dose [1 - 100 mcg]  
 Dosing Unit: mcg LHL: LSL: USL: UHL:

PCA Dose [1 - 50 mcg]  
 Dosing Unit: mcg LHL: LSL: USL: UHL: Lockout Intervals: 5 Min. 120 Max.

Continuous Rate [1 - 200 mcg/hr]  
 Dosing Unit/hr: mcg/hr LHL: LSL: USL: UHL:

Dose Limit [1 - 800 mcg]  
 Dosing Unit: mcg Time Interval: 4-hours USL: UHL:

Delete Cancel Help

4. Click **OK** on the **Delete Medication** pop-up.

Delete Medication

Deleting this medication entry will remove it from the master formulary as well as from the following CCAs:  
 Pain

OK Cancel

**Note:** If the selected medication is not attached to a CCA, the medication entry will be removed from the Master Drug Formulary and no pop-up will display.

**To copy to Target CCA:**

1. Select a medication entry from the Master Drug Formulary.

**Note:** A Target List CCA must be selected before you can copy a medication entry to a Target CCA from the Master Drug Formulary.

2. Click **Copy to Target CCA**.

The screenshot shows the 'Source List: Master Drug Formulary' window. At the top, there is a dropdown menu set to 'Master Drug Formulary' and buttons for 'Add', 'Edit', 'View', and 'Delete'. A 'Copy to Target CCA' button is highlighted with a red circle. Below this is a tabbed interface with 'PCA Dose' selected. A table displays medication entries with the following columns: Generic Name, External ID, Displayed Name, Container Concentration, Displayed Concentration, Dosing Unit, Lower Hard Limit, Lower Soft Limit, and Upper Soft Limit. The first row is highlighted in blue and contains the following data: FENTANYL PCA (1..., 3311, FENTANYL PCA (1, 300 mcg / 30 mL, 10 mcg/mL, mcg. At the bottom of the window, there is a status bar with fields for 'Library Name: PCA', 'Infuser: LifeCare PCA 5.x/7.x', 'Status: Worksheet', and 'Modified: May 10 2016'.

3. Click **Copy** on the **Confirm Copy to CCA** pop-up.

The screenshot shows a 'Confirm Copy to CCA' dialog box. It has a title bar with a close button. Inside, there are two text input fields: 'Copy from:' with the value 'Master Drug Formulary' and 'Copy to:' with the value 'Pain'. Below these is a section titled 'Medication Entries' containing a list box with one entry: 'FENTANYL PCA (1 300 mcg / 30 mL'. At the bottom of the dialog, there are three buttons: 'Copy', 'Cancel', and 'Help'.

**Notes:**

# Chapter 11: Setting Up LifeCare PCA Protocols

## Overview

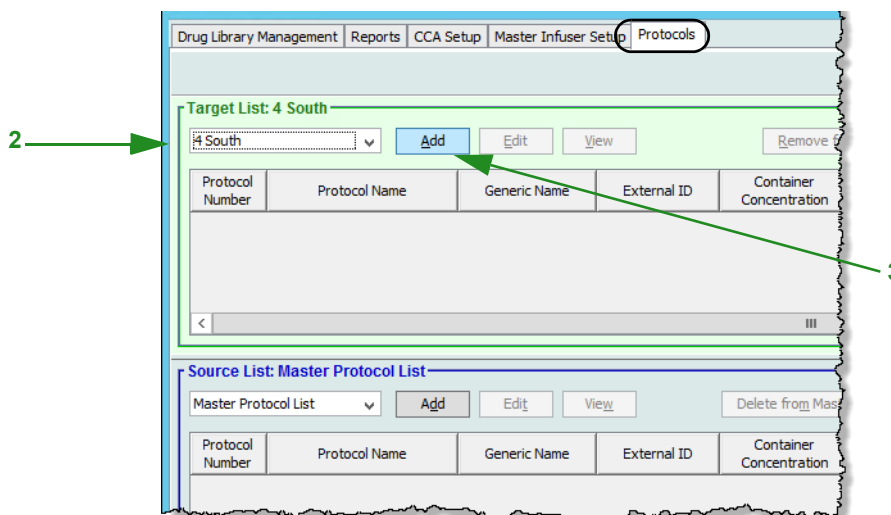
**Note:** Only users with the appropriate login privileges are able to setup LifeCare PCA Protocols.

Protocols are frequently used therapy settings stored in the infuser's memory. Protocols can be recalled easily, making it unnecessary for the clinician to program the same therapy setting each time it is needed. You can define up to five protocols for each Clinical Care Area (CCA). The same protocol may be used across CCAs.

**Note:** First, create a medication entry in the CCA before you define a protocol for that medication.

### To add a protocol for a medication entry:

1. Display the Protocols view by opening a Worksheet for editing and clicking the **Protocols** tab (for instructions on opening a Worksheet, see [Chapter 5: The Library Directory](#) on page 35).



2. Under **Target List**, select a CCA from the drop-down list.
3. Click **Add**.

## 4. Select a medication entry.

Generic Name	External ID	Container Concentration	Time Interval
FENTANYL PCA (10 MCG...	3311	300 mcg / 30 mL	4-hours
MORPHINE PCA	594	30 mg / 30 mL	4-hours

5. Click **OK**.6. Enter a **Protocol Number** or accept the default number.

CCA: 4 South  
Lockout Interval: 5 - 120 minutes

Protocol Number:

Protocol Name:

Generic Name: MORPHINE PCA  
External ID: 594  
Displayed Name: MORPHINE PCA  
Container Concentration: 30 mg / 30 mL  
Delivery Mode: Select

Rule Set Groups	LHL	LSL	USL	UHL
Loading Dose				
PCA Dose				
Continuous Rate				
Dose Limit				

Delivery Parameters

PCA Dose:  Dosing Unit:  Lockout Interval:  minutes:  
Continuous Rate:   
Dose Limit:  Time Interval:

Bar Codes

Bar Code 1:  6584 Bar Code 2:  Bar Code 3:  Bar Code 4:  Bar Code 5:

Please specify Delivery Mode.

**Note:** The protocol number must be unique and cannot be re-used within a drug library. The protocol name, however, can be a duplicate within a drug library.

7. Enter a **Protocol Name**.

**Note:** The Protocol Name is not displayed on the LifeCare PCA infuser.

8. Select a **Delivery Mode** from the following choices:
  - a. PCA
  - b. PCA + Continuous
  - c. Continuous
9. Based on the delivery mode you have chosen, enter variables for the enabled fields. All enabled fields are required.
10. Click **Save**.

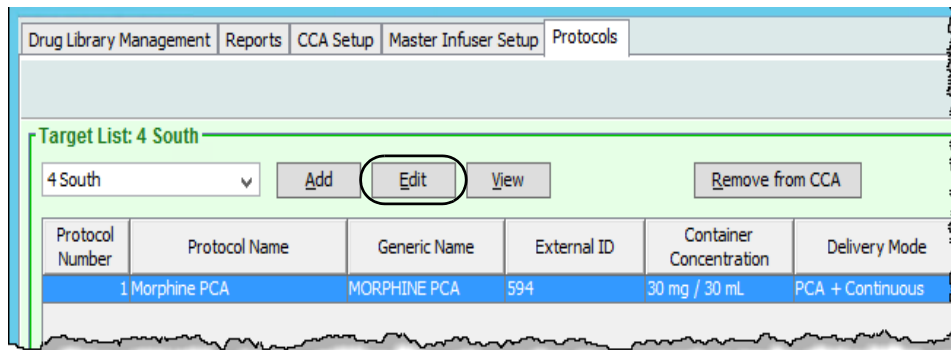
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**Note:** All protocol dosing must be equal to or within the soft limits of the rule set for that medication and concentration (as shown in the **Medication Entry Limits** table). Values must be in the range allowed by the infuser, or an error message appears.

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### To edit a protocol:

1. From a Target List CCA, select the protocol to edit.
2. Click **Edit**.



3. Enter the desired changes.
4. Click **Save**.

Edit Protocol
✕

CCA: 4 South  
Lockout Interval: 5 - 120 minutes

Protocol Number:

Protocol Name:

Generic Name:

External ID:

Displayed Name:

Container Concentration:

Delivery Mode:

Medication Entry Limits

Rule Set Groups	LHL	LSL	USL	UHL
Loading Dose				
PCA Dose				
Continuous Rate				
Dose Limit				

Delivery Parameters

PCA Dose:        Dosing Unit:       Lockout Interval:

Continuous Rate:        Time Interval:

Dose Limit:

Bar Codes

Bar Code 1:       Bar Code 2:       Bar Code 3:       Bar Code 4:       Bar Code 5:

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**Note:** All protocol dosing must be equal to or within the soft limits of the rule set for that medication and concentration (as shown in the **Medication Entry Limits** table). Values must be in the range allowed by the infuser, or an error message appears.

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**To view a protocol:**

1. From a Target List CCA, select the protocol to view.
2. Click **View**.

The screenshot shows a 'View Protocol' window with the following information:

- CCA: 4 South
- Lockout Interval: 5 - 120 minutes
- Protocol Number: 1
- Protocol Name: Morphine PCA
- Generic Name: MORPHINE PCA
- External ID: 594
- Displayed Name: MORPHINE PCA
- Container Concentration: 30 mg / 30 mL
- Delivery Mode: PCA + Continuous

**Medication Entry Limits**

Rule Set Groups	LHL	LSL	USL	UHL
Loading Dose				
PCA Dose				
Continuous Rate				
Dose Limit				

**Delivery Parameters**

- PCA Dose: 5 mg
- Dosing Unit: mg
- Lockout Interval: 10 minutes
- Continuous Rate: 1 mg/hr
- Dose Limit: mg
- Time Interval: 4-hours

**Bar Codes**

- Bar Code 1: 6584
- Bar Code 2:
- Bar Code 3:
- Bar Code 4:
- Bar Code 5:

Buttons: Close, Help

The selected protocol displays.

3. Click **Close** to exit the screen.

**To remove a protocol from a CCA:**

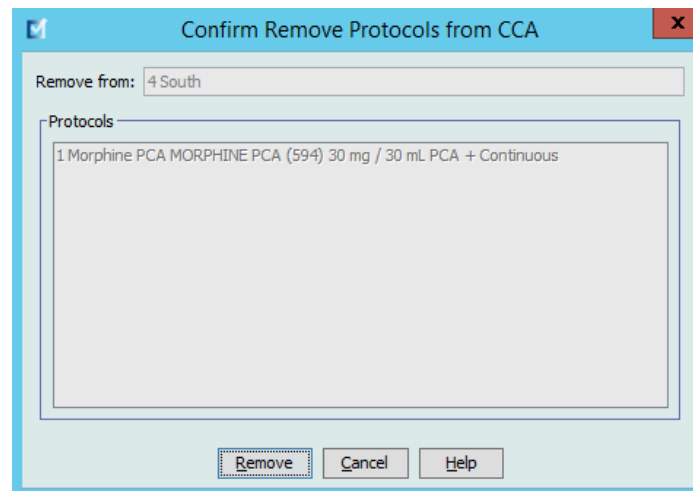
1. From a Target List CCA, select the protocol to be removed.
2. Click **Remove from CCA**.

The screenshot shows the 'Target List: 4 South' interface with the following elements:

- Navigation tabs: Drug Library Management, Reports, CCA Setup, Master Infuser Setup, Protocols
- Target List: 4 South
- Dropdown menu: 4 South
- Buttons: Add, Edit, View, Remove from CCA

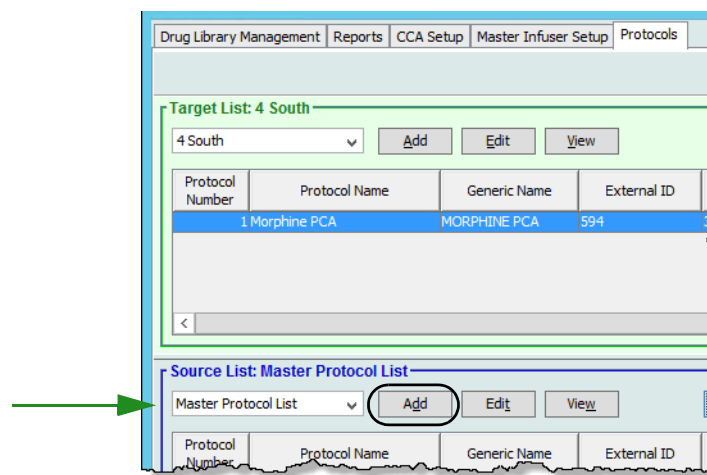
Protocol Number	Protocol Name	Generic Name	External ID	Container Concentration	Delivery Mode
1	Morphine PCA	MORPHINE PCA	594	30 mg / 30 mL	PCA + Continuous

3. Click **Remove** on the **Confirm Remove Protocols from CCA** pop-up.



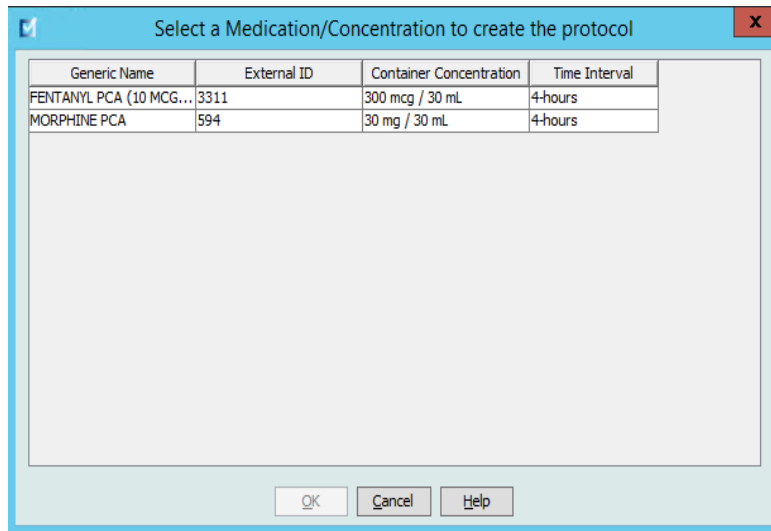
### To add a protocol to the Master Protocol List:

1. Display the Protocols view by opening a Worksheet for editing and clicking the **Protocols** tab (for instructions on opening a Worksheet, see [Chapter 5: The Library Directory](#) on page 35).



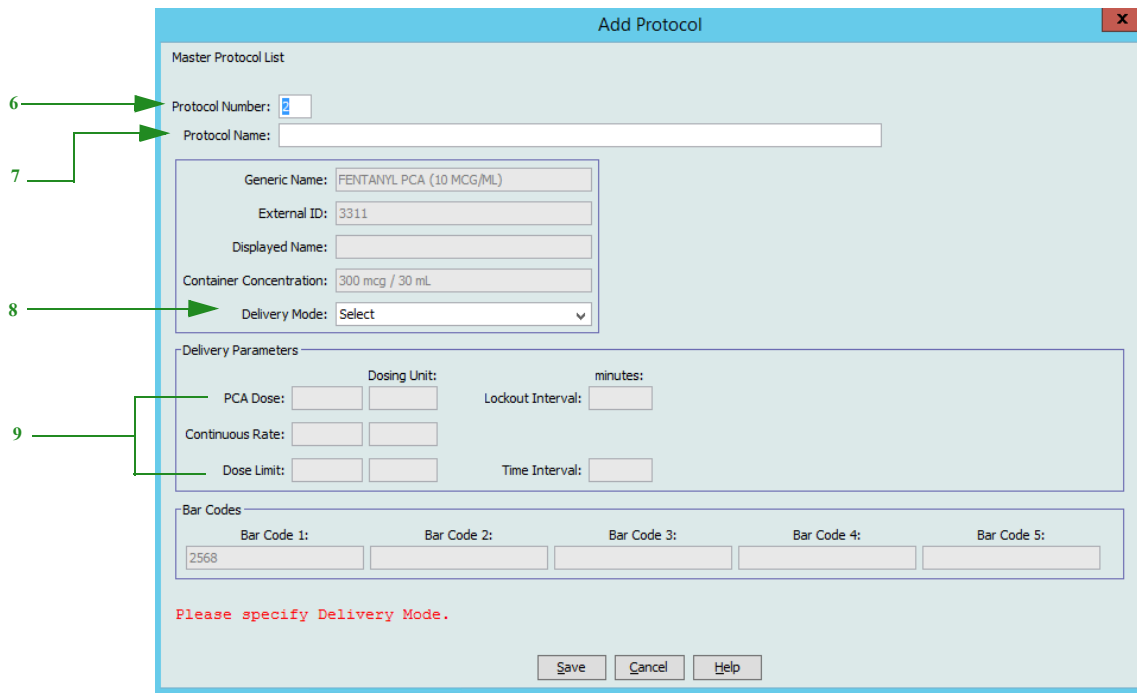
2. Under **Source List**, select the **Master Protocol List** from the drop-down list.
3. Click **Add**.

4. Select a medication entry.



5. Click **OK**.

6. Enter a **Protocol Number** or accept the default number.



**Note:** The protocol number must be unique and cannot be re-used within a drug library. The protocol name, however, can be a duplicate within a drug library.

7. Enter a **Protocol Name**.

**Note:** The Protocol Name is not displayed on the LifeCare PCA infuser.

8. Select a **Delivery Mode** from the following choices:
  - a. PCA
  - b. PCA + Continuous
  - c. Continuous
9. Based on the delivery mode you have chosen, enter variables for the enabled fields. All enabled fields are required.
10. Click **Save**.

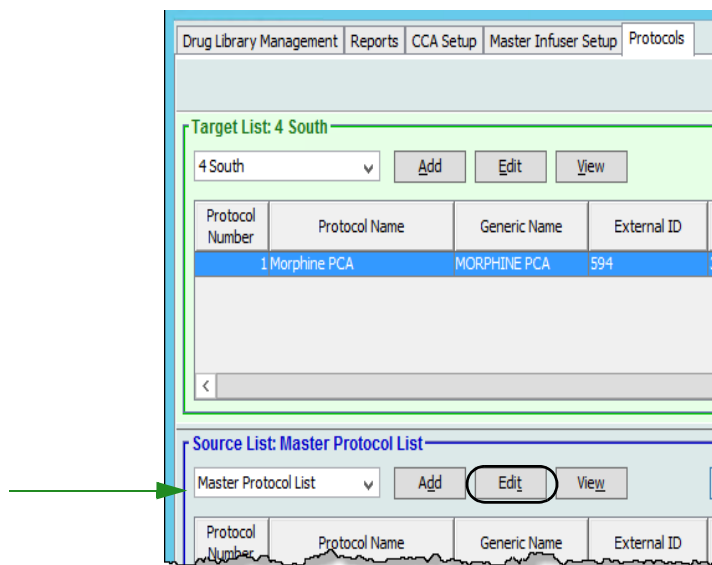
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**Note:** All protocol dosing must be equal to or within the soft limits of the rule set for that medication and concentration (as shown in the **Medication Entry Limits** table). Values must be in the range allowed by the infuser, or an error message appears.

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### To edit a protocol in the Master Protocol List:

1. Select a protocol from the **Source List: Master Protocol List**.
2. Click **Edit**.



3. Enter the desired changes.

The screenshot shows the 'Edit Protocol' window for 'Morphine PCA'. The window title is 'Edit Protocol'. At the top, it displays 'CCA: 4 South' and 'Lockout Interval: 5 - 120 minutes'. Below this, there are input fields for 'Protocol Number' (empty) and 'Protocol Name' (Morphine PCA). A section for protocol details includes 'Generic Name: MORPHINE PCA', 'External ID: 594', 'Displayed Name: MORPHINE PCA', 'Container Concentration: 30 mg / 30 mL', and 'Delivery Mode: PCA + Continuous'. To the right is a 'Medication Entry Limits' table:

Rule Set Groups	LHL	LSL	USL	UHL
Loading Dose				
PCA Dose				
Continuous Rate				
Dose Limit				

Below the table are 'Delivery Parameters' with fields for 'PCA Dose: 5 mg', 'Lockout Interval: 10 minutes', 'Continuous Rate: 1 mg/hr', 'Dose Limit: mg', and 'Time Interval: 4-hours'. At the bottom, there are 'Bar Codes' fields (Bar Code 1-5) with '6584' in the first field. 'Save', 'Cancel', and 'Help' buttons are at the bottom center.

4. Click **Save**.

**To view a protocol in the Master Protocol List:**

1. Select the protocol to view.
2. Click **View**.

The screenshot shows the 'Master Protocol List' interface. At the top, there are tabs: 'Drug Library Management', 'Reports', 'CCA Setup', 'Master Infuser Setup', and 'Protocols'. Below the tabs, there are two sections: 'Target List: 4 South' and 'Source List: Master Protocol List'. The 'Target List' has a dropdown menu set to '4 South' and buttons for 'Add', 'Edit', and 'View'. Below it is a table with columns 'Protocol Number', 'Protocol Name', 'Generic Name', and 'External ID'. One row is highlighted in blue: '1 Morphine PCA', 'MORPHINE PCA', '594'. The 'Source List' has a dropdown menu set to 'Master Protocol List' and buttons for 'Add', 'Edit', and 'View'. A green arrow points to the 'View' button in the 'Source List' section.

The selected protocol displays.

The screenshot shows the 'View Protocol' window for 'Morphine PCA'. The window title is 'View Protocol' with a close button (X) in the top right corner. The main content area is divided into several sections:

- Header:** CCA: 4 South, Lockout Interval: 5 - 120 minutes
- Protocol Information:** Protocol Number: 1, Protocol Name: Morphine PCA
- Generic Name Section:**
  - Generic Name: MORPHINE PCA
  - External ID: 594
  - Displayed Name: MORPHINE PCA
  - Container Concentration: 30 mg / 30 mL
  - Delivery Mode: PCA + Continuous
- Medication Entry Limits Table:**

Rule Set Groups	LHL	LSL	USL	UHL
Loading Dose				
PCA Dose				
Continuous Rate				
Dose Limit				
- Delivery Parameters Section:**
  - PCA Dose: 5 mg, Dosing Unit: mg, Lockout Interval: 10 minutes
  - Continuous Rate: 1 mg/hr
  - Dose Limit: mg, Time Interval: 4-hours
- Bar Codes Section:**
  - Bar Code 1: 6584
  - Bar Code 2:
  - Bar Code 3:
  - Bar Code 4:
  - Bar Code 5:

At the bottom of the window are 'Close' and 'Help' buttons.

3. Click **Close** to exit the screen.

**To delete a protocol from the Master Protocol List:**

1. Select the protocol to delete.
2. Click **Delete from Master Protocol List**.

The screenshot shows two sections of the software interface. The top section is titled 'Target List: 4 South' and contains a table with one protocol entry. The bottom section is titled 'Source List: Master Protocol List' and also contains a table with one protocol entry. Both tables have the same columns: Protocol Number, Protocol Name, Generic Name, External ID, Container Concentration, Delivery Mode, PCA Dose, Lockout Interval (min), Continuous Rate, Dose Limit, and Time Interval.

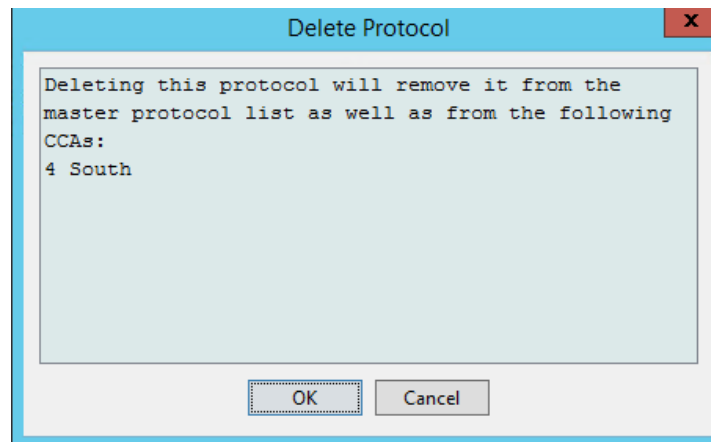
**Target List: 4 South**

Protocol Number	Protocol Name	Generic Name	External ID	Container Concentration	Delivery Mode	PCA Dose	Lockout Interval (min)	Continuous Rate	Dose Limit	Time Interval
1	Morphine PCA	MORPHINE PCA	594	30 mg / 30 mL	PCA + Continuous	5 mg	10	1 mg/hr		4-hours

**Source List: Master Protocol List**

Protocol Number	Protocol Name	Generic Name	External ID	Container Concentration	Delivery Mode	PCA Dose	Lockout Interval (min)	Continuous Rate	Dose Limit	Time Interval
1	Morphine PCA	MORPHINE PCA	594	30 mg / 30 mL	PCA + Continuous	5 mg	10	1 mg/hr		4-hours

3. Click **Remove** on the **Confirm Remove Protocols from CCA** pop-up.



4. Click **OK**.

**Note:** If the selected protocol is not associated with a CCA there will be no confirmation message. The protocol is removed from the Master Protocol list.

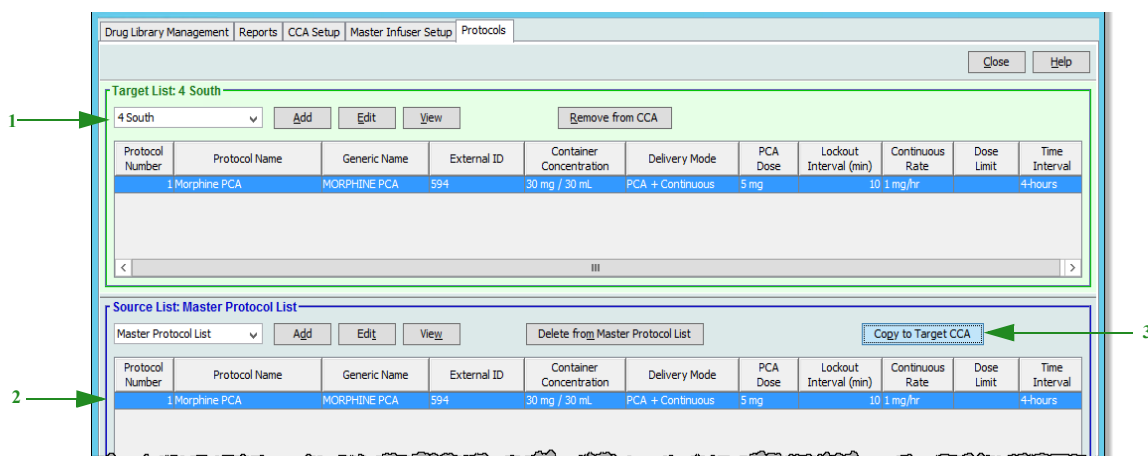
### To copy a protocol to a CCA:

**Note:** Once a protocol has been entered and saved, the protocol is available for duplication to other CCAs using the **Copy from Master Protocol List** button.

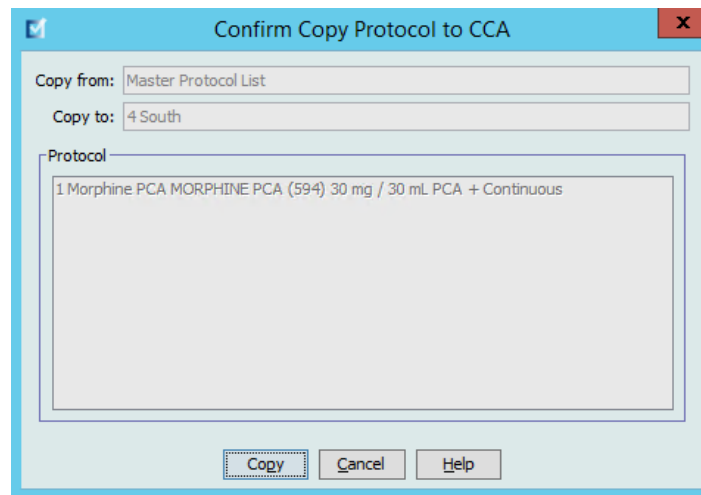
1. Select a CCA from the **Target List** drop-down list.
2. Select a protocol to be copied from the **Source List** to the selected CCA.

**Note:** A protocol can only be copied to a CCA if a medication entry with the same Generic Name, External ID, Container Concentration, and Time Interval exists in the CCA you are copying to.

3. Click **Copy to Target CCA**.



4. Click **Copy** in the **Confirm Copy Protocol to CCA** pop-up.





# Chapter 12: SapphirePlus Medication Entries

## Overview

This chapter explains how to create and define clinical decision rules for medications in the SapphirePlus drug library.

The ICU Medical MedNet Meds software enables you to customize dose-rate limits for medications used in drug libraries. You can customize clinical decision rules for up to 40 different clinical care areas (CCAs) in the hospital and up to 400 medication entries in each CCA. The Master Drug Formulary can contain a maximum of 14,495 medication entries but can only assign up to 11,150 medication entries to the combined CCAs.

## Defining Rule Sets

To create a rule set for a medication, specify the name of the medication, the concentration, dose rate limits, and bolus limits consistent with your IV infusion therapy best practices. Each medication entry must have a generic name and a displayed name. Beyond that, you can create medication entries specific to your institution.

**Important:** The medication entry parameters are linked together and the programming sequence displayed on the infuser is dependent on how the rule set is defined. Please read this section carefully.

The possible combinations for medication concentration include:

- Complete concentration defined (for example, 400 mg/250 mL)
- Partial concentration defined (for example, 400 mg/\_\_\_ mL, \_\_\_mg/\_\_\_ mL, \_\_\_mg/250 mL)
- No Concentration
- Diluent Only

Once the medication unit has been selected, the units displayed in the drop-down list for dose rate limits, bolus amount limits, and bolus dose rate limits will include only the selections that are appropriate for that medication unit. For example, when the medication unit is grams, mg, or mcg, all the dosing units will be in the gram “family.”

Another characteristic of IV medication administration relates to administering a bolus dose. The ICU Medical MedNet Meds software accommodates defining limits for bolus administration by allowing three types of bolus rules to be configured independently:

- Bolus amount limits
- Bolus time limits
- Bolus dose rate limits

Bolus limits must be defined in the same unit “family” as the medication unit.

Within a CCA, no two medication entries may have exactly the same External ID and Concentration. Also, no two medication entries may have exactly the same Displayed Name and Concentration. These represent the two *unique* combinations.

In the Master Drug Formulary, two medication entries may have the same displayed name, medication amount, medication unit, diluent amount, and dosing units, as long as one or more attributes of the dose rate limits or bolus dose rate limits are different.

## Complete Concentration

To create a medication entry with a specific concentration defined, enter the medication amount, medication unit, and diluent amount.

The clinician will not be able to change the concentration on the infuser for this medication.

The screenshot shows a software window titled "Source List: Edit Rule Set" with a close button (X) in the top right corner. The window is divided into several sections:

- Medication and Concentration:**
  - Generic Name (External ID) (Strength / Volume) {Dosage Form}: DOPamine in D5W (3800002011) (3 mg / 250 mL) {Plastic Bag} [Select]
  - Displayed Name 1: DOPamine in D5W
  - Displayed Name 2 (Optional): [Empty]
  - Therapeutic Class: SELECTIVE BETA-1-ADR
  - Class ID: 12120808
  - Summary: DOPamine in D5W 400 mg / 250 mL Dosed in mcg/kg/min
  - No Concentration
  - Diluent Only
    - Medication Amount: 400
    - Medication Unit: mg
    - Diluent Amount: mL 250
- Dose Rate Limits:**
  - Dosing Unit: mcg/kg/min
  - LHL: [Empty]
  - LSL: [Empty]
  - USL: 1
  - UHL: 20
- Therapies:**
  - Basic (Continuous)
  - Piggyback (Secondary)
  - Multistep
- Bolus:**
  - Disabled
  - Simple
  - Advanced

**Note:** Please consult the Q Core SapphirePlus User Manual for the infuser's detailed information and functionality.

## Partial Concentration

To create a medication entry with a partial concentration defined, you must select the desired medication unit. The other concentration fields are optional. Leaving the medication amount or the diluent amount blank allows the clinician to enter a non-standard concentration at the time of programming.

Source List: Edit Rule Set

Medication and Concentration

Generic Name (External ID) (Strength / Volume) {Dosage Form}:  
DOPamine in D5W (3800002011) (3 mg / 250 mL) {Plastic Bag} Select

Displayed Name 1: DOPamine in D5W  
Displayed Name 2 (Optional):  
Therapeutic Class: SELECTIVE BETA-1-ADR  
Class ID: 12120808

Summary: DOPamine in D5W \_\_ mg / 250 mL Dosed in mcg/kg/min

No Concentration

Diluent Only

Medication Amount: Medication Unit: mg Diluent Amount: mL 250

Dose Rate Limits

Dosing Unit: mcg/kg/min LHL: LSL: USL: 1 UHL: 20

Bolus:  Disabled  Simple  Advanced

Therapies

- Basic (Continuous)
- Piggyback (Secondary)
- Multistep

**Note:** Please consult the Q Core SapphirePlus User Manual for the infuser's detailed information and functionality.

## No concentration

To create a medication entry with no concentration defined, check “No Concentration.” The corresponding concentration fields will be grayed out. This type of rule set is useful when you simply want the name of the medication to display on the infuser and concentration or diluent volume is not appropriate for that medication.

The screenshot shows the 'Source List: Edit Rule Set' window. The 'Medication and Concentration' section is active, displaying 'DOPamine in D5W (3800002011) (3 mg / 250 mL) {Plastic Bag}' in the 'Generic Name' field. Below this, there are fields for 'Displayed Name 1' (DOPamine in D5W), 'Displayed Name 2 (Optional)', 'Therapeutic Class' (SELECTIVE BETA-1-ADR), and 'Class ID' (12120808). A 'Summary' line reads 'DOPamine in D5W Dosed in \_\_'. A checkbox labeled 'No Concentration' is checked and circled in red. Below this, the 'Dose Rate Limits' section includes a 'Dosing Unit' dropdown (set to 'Select') and fields for 'LHL:', 'LSL:', 'USL:', and 'UHL:'. The 'Bolus' section has radio buttons for 'Disabled' (selected), 'Simple', and 'Advanced'. The 'Therapies' section has checkboxes for 'Basic (Continuous)', 'Piggyback (Secondary)', and 'Multistep', all of which are checked.

**Note:** Please consult the Q Core SapphirePlus User Manual for the infuser’s detailed information and functionality.

## Diluent Only

To create a Diluent Only medication entry, check “Diluent Only.” You may enter a specific diluent volume or leave the field blank. The clinician will be prompted to enter the diluent volume when programming the infuser if you leave the field blank. This type of rule set is useful for solutions like Dextrose 5% in Water, TPN, and others where the medication amount is not pertinent.

The screenshot shows the 'Source List: Add Rule Set' window. In the 'Medication and Concentration' section, the 'Generic Name' field contains 'Albumin Human (8540001000) (5 % / 500 mL) {IV Soln}'. Below this, the 'Displayed Name 1' is 'Albumin Human', 'Therapeutic Class' is 'BLOOD DERIVATIVES', and 'Class ID' is '16000000'. A summary line reads 'Summary: Albumin Human 1000 mL Dosed in mL/hr'. The 'Diluent Only' checkbox is checked and circled in red. The 'Diluent Amount: mL' field is set to '1000'. In the 'Dose Rate Limits' section, the 'Dosing Unit' is 'mL/hr'. The 'Therapies' section has three checked options: 'Basic (Continuous)', 'Piggyback (Secondary)', and 'Multistep'. The 'Bolus' section has 'Disabled' selected.

**Note:** Please consult the Q Core SapphirePlus User Manual for the infuser's detailed information and functionality.

## Setting Limits

ICU Medical MedNet Meds allows you to define dose rate limits, and bolus limits for medications infused through the SapphirePlus infuser.

You can define upper and lower soft and hard limits as part of the rule set for each medication entry created in the library. As you configure the limits, the software enforces the following rules:

*Lower Hard Limit (LHL) <= Lower Soft Limit (LSL) <= Upper Soft Limit (USL) <= Upper Hard Limit (UHL)*

**Soft Limits** are dose rate limits that can be overridden when programming the infuser. When a value entered on the infuser is lower than the lower soft limit or higher than the upper soft limit, the infuser displays a soft limit override confirmation message. The infuser records soft limit overrides.

For example, if the upper soft limit is set to 10 mcg/kg/min and the clinician enters 15 mcg/kg/min, the infuser will display a soft limit override alert. This alert notifies the clinician that the entry is outside the range of the soft limits set for that medication in the drug library. The clinician can choose to continue programming using the override or cancel the override and edit the value.

**Hard Limits** are dose rate limits that cannot be overridden.

**Bolus Limits** can be defined in three ways:

**Bolus Amount Limits** allow you to define the total amount of medication that can be administered in a bolus.

**Bolus Time Limits** allow you to define the time period over which a bolus can be administered. A minimum administration time for the bolus is defined as a lower limit, while a maximum administration time is defined as an upper limit.

**Bolus Dose Rate Limits** allow you to define the rate at which a bolus can be administered.

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**Note:** If defining Bolus Rules by weight:  
The Bolus Dose Rate limits can be defined based on weight only if the Bolus Amount units are also based on weight.

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## SapphirePlus Therapy Modes

Programming workflow on the SapphirePlus infuser requires the user to select a CCA. The user can then proceed to select the medication, enter the infusion settings (rate, volume, time, patient weight, as appropriate), confirm and start the infusion.

The SapphirePlus drug library contains settings that control which therapy modes are available on the infuser for each medication entry. In the medication rule set view, checkboxes are used to enable each of the following therapy modes:

- **Basic (Continuous):** Allows the user to program the medication as a primary infusion.
- **Bolus:** Allows the user to program a bolus delivery from either a primary or secondary infusion.
- **Piggyback (Secondary):** Allows the user to program an infusion from a secondary container once a primary infusion has been programmed.

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**Note:** The maximum rate for a piggyback infusion from a secondary container is 500 mL/hr.

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- **Multistep:** Allows the user to program an infusion with up to 25 sequential steps.

## Medication Entry Rules and Conventions

The ICU Medical MedNet Meds software uses the following conventions for SapphirePlus medication entries:

- Entry of upper hard and soft limits, and lower hard and soft limits, is optional, not required.
- Medication entries can be created by adding them to either the Master Drug Formulary or directly to a CCA. Medication entries added to a CCA Target List are automatically copied into the Master Drug Formulary List.
- “Validity” messages appear in red at the bottom of the Rule Set window. When you enter a value that is not allowed, the message specifies the defined range for the field, or the reason the value is not permitted.
- Displayed Name cannot contain comma (,) double-quote (“) lesser than (<) or greater than (>) characters. All alphabetic and numeric characters are acceptable as are the following:  
. % / # \* - \_ & ( ) + SPACE

For **SapphirePlus 14.x**, the Displayed Name may appear on the infuser in two consecutive lines. Therefore, ICU Medical MedNet Meds reflects the infuser by showing two Displayed Name fields allowing for 40 characters that can be entered two ways, as shown below for Amino Acid 2% Dextrose 10%:

In the first Displayed Name you could have **Amino Acid 2% - Dextrose 10%** in the Displayed Name (Optional) field

or split it as follows:

**Amino** in the first Displayed Name field

**2% - Dextrose 10%** in the Displayed Name (Optional) field

The **Displayed Name** field must contain an entry of at least one character. The **Displayed Name (optional)** field can remain empty.

- Once you select a medication unit, the dosing unit field will display only the enabled unit type.
- The software prohibits invalid numeric entries and signals them with an audible “beep.”
- You may use the vertical and horizontal scroll bars to navigate to an entry.
- If you do not select or populate a required field, an error message appears.
- When you highlight an entry on the Drug Library Management list view, buttons or features that are not allowed appear as “grayed” or disabled.
- When you add a new medication in the Generic Name field of the Rule Set window, you may search for a medication by typing the first few characters of its generic name. The drop-down list will navigate to show any matching medications.



# The SapphirePlus Medication Rule Set

When you configure a medication for use in the SapphirePlus drug library, the Rule Set window enables you to define dosage limits as seen in the screen below.

## SapphirePlus 14.0

Target List: Add Rule Set X

**Medication and Concentration**

**Generic Name** (External ID) (Strength / Volume) (Dosage Form):

Dextrose 5% (5011) Select

Displayed Name 1:     Displayed Name 2 (Optional):     Therapeutic Class:     Class ID:

**Summary: Dextrose 5%** \_\_\_ / \_\_\_ mL Dosed in \_\_\_

No Concentration

Diluent Only

Medication Amount:     Medication Unit:     Diluent Amount: mL

**Dose Rate Limits**

Dosing Unit:     LHL:     LSL:     USL:     UHL:

**Therapies**

Basic (Continuous)

Piggyback (Secondary)

Multistep

**Bolus:**  Disabled     Simple     Advanced

**Bolus Amount Limits**

Unit:     LHL:     LSL:     USL:     UHL:

Maximum Bolus Amount Unit:     Maximum Bolus Amount:

**Delivery at End of Infusion**

None / Stop

Continue Rate

KVO

Default KVO Rate:  [0.1 - 20 mL/hr]

**Bolus Time Limits (hh:mm)**

LHL:  :     LSL:  :     USL:  :     UHL:  :

**Bolus Dose Rate Limits**

Dosing Unit:     LHL:     LSL:     USL:     UHL:

Please specify Medication Unit.

Save & Add Another
Save & Close
Cancel
Help

# SapphirePlus 14.5

Target List: Add Rule Set ✕

**Medication and Concentration**

Generic Name (External ID) (Strength / Volume) (Dosage Form):

Amiodarone Max Con (15) Select

Displayed Name 1:     Displayed Name 2 (Optional):     Therapeutic Class:     Class ID:

**Summary: Amiodarone**    \_\_\_ / \_\_\_ mL Dosed in \_\_\_

No Concentration

Diluent Only

Medication Amount:     Medication Unit:     Diluent Amount: mL

**Dose Rate Limits**

Dosing Unit:     LHL:     LSL:     USL:     UHL:

Maximum Dose Rate Unit:     Maximum Dose Rate:

Time Limits (hh:mm):

LHL:  :     LSL:  :     USL:  :     UHL:  :

**Bolus:**     Disabled     Simple     Advanced

**Bolus Amount Limits**

Unit:     LHL:     LSL:     USL:     UHL:

Maximum Bolus Amount Unit:     Maximum Bolus Amount:

**Bolus Time Limits (hh:mm)**

LHL:  :     LSL:  :     USL:  :     UHL:  :

**Bolus Dose Rate Limits**

Dosing Unit:     LHL:     LSL:     USL:     UHL:

Please specify Medication Unit.

**Therapies**

Basic (Continuous)

Piggyback (Secondary)

Multistep

**Delivery at End of Infusion**

None / Stop

Continue Rate

KVO

Default KVO Rate:  [0.1 - 20 mL/hr]

**Patient Weight**

Minimum:  [0.1 - 500 kg]

Maximum:  [0.1 - 500 kg]

**Other Settings**

Enable Automatic Patient Lockout

Save & Add Another
Save & Close
Cancel
Help

## Rule Set Fields

The following table lists the fields, a brief description, and allowed value range for the infuser.

Field	Description	Allowable Range
Generic Name	The medication name from the Medication List. It is selected from the drop-down list and displays the External ID (the hospital's identifier for a medication). Strength/Volume and Dosage Form display only if part of your Medication List.	Not editable in ICU Medical MedNet Meds.
Displayed Name	The name that will be displayed on the infuser.	<ul style="list-style-type: none"> <li>Cannot be blank</li> <li>Each medication entry must have a generic name and a displayed name; you cannot save a medication entry without a name in these fields. The number of characters in the displayed name is determined by how it is displayed on the infuser's screen.</li> <li>The maximum number of characters allowed in a displayed name is 40 (SapphirePlus 14.0 and 14.5) when using both Displayed Name fields.</li> <li>Displayed Name cannot contain comma (,), lesser than (&lt;), greater than (&gt;), or double-quote (") characters. All alphabetic and numeric characters are acceptable as are . % / # * - _ &amp; ( ) + SPACE</li> </ul> <p>SapphirePlus 14.5 only allows: lesser than (&lt;), greater than (&gt;), and equal (=).</p>
Therapeutic Class	The therapeutic class assigned to the medication.	Not editable in ICU Medical MedNet Meds.
Class ID	The ID of the therapeutic class assigned to the medication.	Not editable in ICU Medical MedNet Meds.
No Concentration	Allows you to create an entry for medications when concentration is not needed.	Checked or Unchecked
Diluent Only	Allows you to create a medication entry for plain IV solutions or those IV fluids where concentration is not important in defining the rule set, i.e., when dosing units are mL/kg/hr or mL/hr.	Checked or Unchecked
Medication Amount	Allows you to enter the medication amount in the units selected.	mcg, mg, grams, mmol, Million Units, milliUnits, units, mEq  For SapphirePlus 14.0: <ul style="list-style-type: none"> <li>0.01-99.99 in increments of 0.01</li> <li>100-9999999 in increments of 1</li> </ul> For SapphirePlus 14.5: <ul style="list-style-type: none"> <li>0.001-9.999 in increments of 0.001</li> <li>10.00-99.99 in increments of 0.01</li> <li>100-9999999 in increments of 1</li> </ul>

Field	Description	Allowable Range
Medication Unit	Allows you to select the unit of measure for the medication amount.	mcg, mg, grams, mmol, Million Units, milliUnits, units, mEq. For SapphirePlus 14.0 and 14.5 only: nanog
Diluent Amount	Allows you to set the total volume of the medication container or syringe.	For mL: <ul style="list-style-type: none"> <li>• 0.1-99.9 mL in increments of 0.1</li> <li>• 100-9999 mL in increments of 1</li> </ul>
Dosing Unit	The dosing unit for the medication.	For complete dosing units, please consult your infuser's System Operating Manual
Dose Rate Limits	Lower hard limit, lower soft limit, upper soft limit, upper hard limit.  Allows you to set the upper and/or lower limits for dose rate, VTBI, bolus amount, bolus time, and bolus dose rate.	For complete dose rate limits, please consult your infuser's System Operating Manual
Maximum Dose Rate Unit (SapphirePlus 14.5 only)	This field is only enabled when the Dosing Unit selected is weight-based.	For complete maximum dose rate units, please consult your infuser's System Operating Manual
Maximum Dose Rate (SapphirePlus 14.5 only)	Allows you to set a maximum dose for the Dose Rate Unit selected.	For maximum dose rates, please consult your infuser's System Operating Manual
Time Limits (hh:mm) SapphirePlus 14.5 only)	Lower hard limit, lower soft limit, upper soft limit, upper hard limit.	Using hh:mm formatting, the range is: <ul style="list-style-type: none"> <li>• 00:01-99.59 in increments of 00:01</li> </ul>
Therapies	Therapies allowed for the drug entry. Choosing one of these determines where the drug is listed on the infuser.	<ul style="list-style-type: none"> <li>• Basic (Continuous)</li> <li>• Piggyback (Secondary)</li> <li>• Multistep</li> </ul>
Enable Bolus	Indicates this medication will be available for a bolus therapy on the infuser and may be administered as a bolus that is independent of the limits governing a basic infusion.	For SapphirePlus 14.0 and 14.5 Disabled, Simple, or Advanced
Bolus Amount Limits <sup>1</sup>	Allows you to define the total amount of medication that can be administered in a bolus.	For mL: <ul style="list-style-type: none"> <li>• 0.1-99.9 in increments of 0.1</li> <li>• 100-9999 in increments of 1</li> </ul> For nanog, mcg, mg, gram, milliUnits- and units-based, Million Units, mEq, mmol: <ul style="list-style-type: none"> <li>• 0.001-99.999 in increments of 0.001</li> <li>• 100-9999999 in increments of 0.1</li> </ul>

Field	Description	Allowable Range
Maximum Bolus Amount and Units <sup>1</sup>	<p>Enabled when the selected Bolus Amount Limits Unit is weight-based.</p> <p>If the Bolus Amount Limits Unit is not mL/kg, the allowable values are the same as those in the selected Bolus Amount Limits Unit family (mmol, mEq, Units, or grams), and exclude weight-based.</p> <p>If the Bolus Amount Limits Unit is mL/kg, the Maximum Bolus Amount Units are mL.</p>	See Bolus Amount Limits.
Bolus Time <sup>1</sup>	Allows you to define the time period over which a bolus can be administered, in hh:mm format.	<p>Entered Time:</p> <ul style="list-style-type: none"> <li>• 00:01-99:59 in increments of 00:01</li> </ul>
Bolus Dose Rate <sup>1</sup> Limits	Allows you to define the rate at which a bolus can be administered.	<p>For mL family (Basic, Multistep and Bolus):</p> <p>0.1-99.9 in increments of 0.1</p> <p>100-999 in increments of 1</p> <p>For mL (Piggyback only):</p> <p>0.1 - 99.9 in increments of 0.1</p> <p>100 - 500 in increments of 1</p> <p>For the following families: grams, units, Million Units, mEQ-based, and mmol:</p> <p>0.001-99.999 in increments of 0.001</p> <p>100-9999999 in increments of 1</p>
Delivery at End of Infusion (SapphirePlus 14.0 and 14.5 only)		None/stop, Continue Rate or KVO (Default KVO Rate: 0.1-20 mL/hr)
Patient Weight (SapphirePlus 14.5 only)	Allows you to set minimum and maximum patient weight for the selected medication	<p>Minimum</p> <p>0.1 - 500 kg (Default: blank)</p> <p>Maximum</p> <p>0.1 - 500 kg (Default: blank)</p>
Other Settings Enable Automatic Patient Lockout (SapphirePlus 14.5 only)	Prevents patient from affecting the rule set.	<p>Check or uncheck.</p> <p><b>Note:</b> The field is disabled if "Enable Automatic Patient Lockout" has been selected in CCA settings.</p>
<p><sup>1</sup> Visible only when Bolus is enabled.</p> <p>Refer to your infuser's System Operating Manual for complete details and allowable range.</p>		

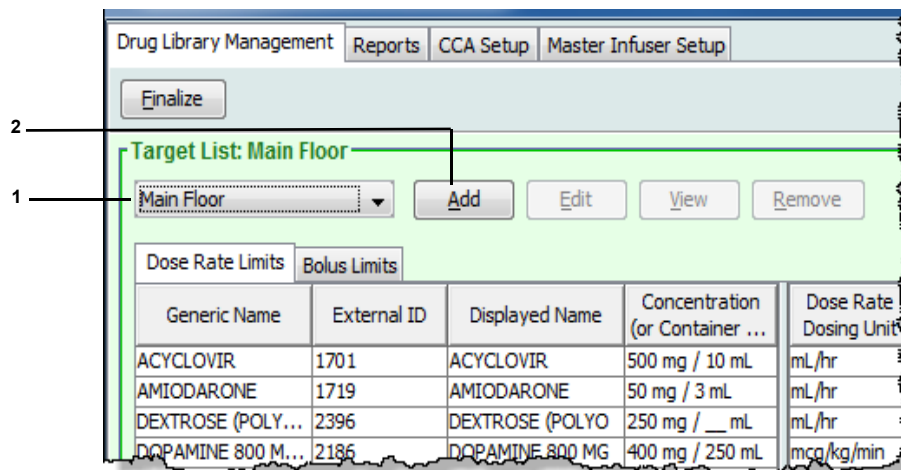
## Step-by-step Procedures

The following section provides step-by-step procedures that enable you to create and manage medication entries. In this section you will learn how to do the following:

- Add a medication entry in a CCA
- Edit a medication entry in a CCA
- Create a medication entry in the Master Drug Formulary
- Edit a medication entry in the Master Drug Formulary
- View a medication entry in the Master Drug Formulary
- Delete a medication entry from the Master Drug Formulary
- Copy a medication entry from the Master Drug Formulary to a Target CCA

### To add a medication entry in a CCA:

1. Select the desired CCA from the drop-down Target List.
2. Click **Add**, from the Target List.



### 3. Select the **Generic Name** for the medication entry from the medication list.

Select a Medication

All Medications

Show generic names beginning with

Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form
ALEMTUZUMAB	CAMPATH	3534	30 MG	1 ML	**
ALPROSTADIL	PROSTIN VR PED (EQ)	3029	500 MCG	1 ML	**
ALPROSTADIL	PROSTIN VR PED (EQ)	194	500 MCG	1 ML	AMP
ALTEPLASE	CATHFLO	2760	2 MG	1 VIAL	VIAL
ALTEPLASE	ACTIVASE	2769	1 MG	1 ML	**
ALTEPLASE	ACTIVASE	2768	50 MG	1 VIAL	VIAL
ALTEPLASE	CATHFLO	3793	1 MG	1 ML	**
ALTEPLASE	ACTIVASE	1259	100 MG	1 VIAL	VIAL
AMIKACIN	AMIKACIN	1439	250 MG	1 ML	**
AMIKACIN	AMIKACIN	211	500 MG	2 ML	VIAL
AMINO ACID 2%-DEXTRO...	AMINO ACID 2%-DEXTRO...	3422		250 ML	IV BAG
AMINO ACIDS 10%	TROPHAMINE	976		500 ML	BTL
AMINO ACIDS 15%	AMINO ACIDS 15%	626		2000 ML	IV BAG
AMINO ACIDS 8%	HEPATAMINE 8%	977		500 ML	BTL
AMINOCAPROIC ACID	AMICAR (EQ)	1669	0.25 GM	1 ML	**
AMINOCAPROIC ACID	AMICAR (EQ)	1062	5 GM	20 ML	VIAL
AMINOPHYLLINE	AMINOPHYLLINE	1051	250 MG	10 ML	VIAL
AMINOPHYLLINE	AMINOPHYLLINE	1052	500 MG	20 ML	VIAL
AMINOPHYLLINE-NSS	AMINOPHYLLINE-NSS	3927	2.5 MG	1 ML	INFSYR
AMIODARONE	CORDARONE (EQ)	1718	150 MG	3 ML	VIAL
AMIODARONE	CORDARONE (EQ)	1719	50 MG	1 ML	**
AMIODARONE KIT (STOCK)	CORDARONE (EQ) KIT (ST...	2499	450 MG	250 ML	IV BAG
AMPHOTERICIN B	AMPHOTERICIN B	1677	5 MG	1 ML	**

Selected Medication

**Generic Name** (External ID) (Strength / Volume) (Dosage Form):

AMIODARONE (1719) (50 MG / 1 ML) (\*\*\*)

Displayed Name: AMIODARONE

Select Medication Cancel Help

### 4. Click **Select Medication**.

**Note:** Selecting a **Generic Name** from the medication list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and the **Class ID** fields.

- The **Displayed Name** can be edited once populated. You can either accept or edit the Displayed Name before continuing. For **SapphirePlus 14.0 and SapphirePlus 14.5**, the maximum number of characters in the **Displayed Name** is 40 when using the two available fields.

- Configure the desired concentration values by either:
  - Checking **No Concentration**, or
  - Checking **Diluent Only**, or
  - Entering/selecting values for **Medication Amount**, **Medication Unit**, and **Diluent Amount**.
- Set the **Dose Rate Limits** by selecting the Dosing Unit from the drop-down list; then enter the desired values for Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit.

**Note:** Dose Rate Limits are optional but Dosing Unit must be selected.

#### For SapphirePlus 14.5 only:

The **Maximum Dose Rate Unit** field is optional and is only enabled if you select a weight-based **Dosing Unit**. Once you enter a **Maximum Dose Rate Unit**, the **Maximum Dose Rate** field is enabled.

**Time Limits** are optional. Enter the desired values for Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit, using the hh:mm format.

**Note:** The **Time Limits** fields are disabled when **Multistep** is checked in Therapies.

- Select the **Bolus** option(s) if you want to set bolus dose limits for this medication (Optional). If you do not choose to set Enable Bolus, proceed to the next step.



## To set a SapphirePlus bolus:

Select from **Disabled**, **Simple**, or **Advanced** for the SapphirePlus 14.0 and 14.5.

- **Disabled**
- **Simple.** When this option is selected, the **Bolus Amount Limits** Unit field is available. Select a unit from the drop-down list and enter desired values for Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit.

The screenshot shows the 'Simple' bolus configuration. The 'Bolus' section has 'Simple' selected. The 'Dose Rate Limits' section has a 'Dosing Unit' dropdown set to 'Select'. The 'Bolus Amount Limits' section has a 'Unit' dropdown set to 'Select'. The 'Therapies' section has 'Basic (Continuous)', 'Piggyback (Secondary)', and 'Multistep' checked. The 'Delivery at End of Infusion' section has 'KVO' selected with a 'Default KVO Rate' of 1 [0.1 - 20 mL/hr].

- **Advanced.** When the Advanced option is selected, the following fields are available:
  - Bolus Amount Limits Unit.** Select from the drop-down list and enter the desired values for Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit. This is a required field.
  - Bolus Time Limits:** Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit.
  - Select the **Bolus Dose Rate Limits** from the Dosing Unit drop-down list. Enter the desired values for Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit (optional)

The screenshot shows the 'Advanced' bolus configuration. The 'Bolus' section has 'Advanced' selected. The 'Dose Rate Limits' section has a 'Dosing Unit' dropdown set to 'Select'. The 'Bolus Amount Limits' section has a 'Unit' dropdown set to 'Select', and 'Maximum Bolus Amount Unit' and 'Maximum Bolus Amount' fields. The 'Bolus Time Limits (hh:mm)' section has four fields for LHL, LSL, USL, and UHL. The 'Bolus Dose Rate Limits' section has a 'Dosing Unit' dropdown set to 'Select'. A red error message 'Please specify Dosing Unit.' is displayed. The 'Therapies' section has 'Basic (Continuous)', 'Piggyback (Secondary)', and 'Multistep' checked. The 'Delivery at End of Infusion' section has 'KVO' selected with a 'Default KVO Rate' of 1 [0.1 - 20 mL/hr]. Buttons for 'Save & Add Another', 'Save & Close', 'Cancel', and 'Help' are at the bottom.

9. For **Therapies**, check or uncheck Basic (Continuous), Piggyback (Secondary), and Multistep, as needed. At least one of the therapies must be checked to enable the medication to be selected from the Program screen on the infuser.

Dose Rate Limits  
Dosing Unit: Select LHL: LSL: USL: UHL:

**Bolus:**  Disabled  Simple  Advanced

Bolus Amount Limits  
Unit: Select LHL: LSL: USL: UHL:  
Maximum Bolus Amount Unit: Maximum Bolus Amount:

Bolus Time Limits (hh:mm)  
LHL: LSL: USL: UHL:

Bolus Dose Rate Limits  
Dosing Unit: Select LHL: LSL: USL: UHL:

Please specify Dosing Unit.

Therapies  
 Basic (Continuous)  
 Piggyback (Secondary)  
 Multistep

Delivery at End of Infusion  
 None / Stop  
 Continue Rate  
 KVO  
Default KVO Rate: 1 [0.1 - 20 mL/hr]

Save & Add Another Save & Close Cancel Help

10. **Delivery at End of Infusion** (for SapphirePlus 14.0 and 14.5) allows you to select from None/Stop, Continue Rate or KVO (Default KVO rate is 0.1-20 mL/hr).

Dose Rate Limits  
Dosing Unit: milliUnits/kg/hr LHL: 10 LSL: 28 USL: 39 UHL:  
Maximum Dose Rate Unit: Maximum Dose Rate:

Time Limits (hh:mm)  
LHL: LSL: USL: UHL:

**Bolus:**  Disabled  Simple  Advanced

Therapies  
 Basic (Continuous)  
 Piggyback (Secondary)  
 Multistep

Delivery at End of Infusion  
 None / Stop  
 Continue Rate  
 KVO  
Default KVO Rate: 1 [0.1 - 20 mL/hr]

Patient Weight  
Minimum: [0.1 - 500 kg]  
Maximum: [0.1 - 500 kg]

Other Settings  
 Enable Automatic Patient Lockout

Save & Add Another Save & Close Cancel Help

11. **Patient Weight** (For SapphirePlus 14.5 only) allows you to select the minimum and maximum weight for a patient. The defaults are blank for minimum and blank for maximum. If no values are entered, the range will be determined by the values set in the CCA settings.

12. **Other Settings** (For SapphirePlus 14.5 only) When checked, Enable Automatic Patient Lockout prevents a patient from altering this rule set. However, if you have checked Enable Automatic Patient Lockout in CCA Settings the rule set option is overridden as the specific CCA will incorporate this feature.

13. Click **Save & Add Another** or **Save & Close** to add the medication entry to the CCA.

### To edit a medication entry in a CCA:

1. Select the CCA containing the medication entry you want to edit from the **Target List** drop-down.
2. From the **Target List**, select the medication entry you want to edit.

The screenshot shows the 'Target List: Main Floor' window. At the top, there are tabs for 'Drug Library Management', 'Reports', 'CCA Setup', and 'Master Infuser Setup'. Below the tabs is a 'Finalize' button. The main area is titled 'Target List: Main Floor' and contains a dropdown menu set to 'Main Floor', along with 'Add', 'Edit', 'View', and 'Remove' buttons. Below this is a section for 'Dose Rate Limits' and 'Bolus Limits'. A table lists medication entries with columns for Generic Name, External ID, Displayed Name, Concentration (or Container ...), and Dose Rate Dosing Unit. The entry for 'HEPARIN 25 000 ...' is highlighted in blue.

Generic Name	External ID	Displayed Name	Concentration (or Container ...)	Dose Rate Dosing Unit
ACYCLOVIR	1701	ACYCLOVIR	500 mg / 10 mL	mL/hr
DEXTROSE (POLY...	2396	DEXTROSE (POLYO	250 mg / __ mL	mL/hr
DOPAMINE 800 M...	2186	DOPAMINE 800 MG	400 mg / 250 mL	mcg/kg/min
HEPARIN 25 000 ...	1642	HEPARIN 25 000	7500 units / ___...	units/kg/hr
OXYTOCIN	537	OXYTOCIN	10 units / 1 mL	milliUnits/min
VASOPRESSIN	2530	VASOPRESSIN	20 units / 1 mL	units/min

3. Click **Edit**.

**Helpful Hint:** You can also double-click a medication entry to display the **Rule Set** dialog box.

4. Make changes as desired.

The screenshot shows the 'Target List: Edit Rule Set' dialog box. The title bar reads 'Target List: Edit Rule Set'. The main area is titled 'Medication and Concentration' and contains a text field for 'Generic Name (External ID) (Strength / Volume) {Dosage Form}:'. Below this are fields for 'Displayed Name 1:', 'Displayed Name 2 (Optional):', 'Therapeutic Class:', and 'Class ID:'. A 'Summary' line reads 'Heparin Sod (Porcine) 25000 units / 250 mL Dosed in milliUnits/kg/hr'. There are checkboxes for 'No Concentration', 'Diluent Only', and 'Medication Amount: Medication Unit: Diluent Amount: mL'. Below this is a 'Dose Rate Limits' section with fields for 'Dosing Unit:', 'LHL:', 'LSL:', 'USL:', and 'UHL:'. At the bottom, there are radio buttons for 'Bolus: Disabled', 'Simple', and 'Advanced'. On the right side, there is a 'Therapies' section with checkboxes for 'Basic (Continuous)', 'Piggyback (Secondary)', and 'Multistep'.

5. Click **Save & Close** to save your changes.

**Note:** Medication entries in the Master Drug Formulary will be updated with the same change.

If you edit a medication entry in one CCA and then edit another CCA with different rule sets, there will be two medication entries in the Master Drug Formulary that will show the same medication but each will have its own rule set.

## To view a medication entry in a CCA:

1. Select the CCA containing the medication entry you want to view from the **Target List** drop-down list.

The screenshot shows the 'Target List: Main Floor' window. At the top, there are tabs for 'Drug Library Management', 'Reports', 'CCA Setup', and 'Master Infuser Setup'. Below the tabs is a 'Finalize' button. The main area is titled 'Target List: Main Floor' and contains a dropdown menu set to 'Main Floor', along with 'Add', 'Edit', 'View', and 'Remove' buttons. Below this are tabs for 'Dose Rate Limits' and 'Bolus Limits'. A table lists various medications with columns for Generic Name, External ID, Displayed Name, Concentration (or Container ...), and Dose Rate Dosing Unit. The row for 'HEPARIN 25 000 ...' is highlighted in blue.

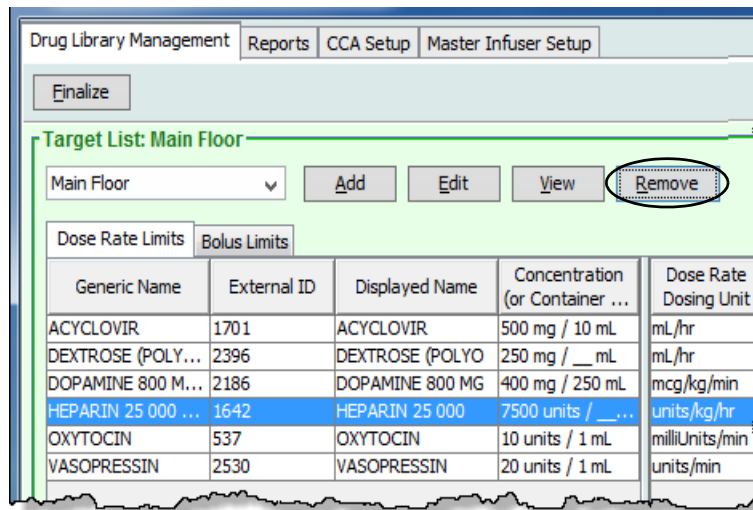
Generic Name	External ID	Displayed Name	Concentration (or Container ...)	Dose Rate Dosing Unit
ACYCLOVIR	1701	ACYCLOVIR	500 mg / 10 mL	mL/hr
DEXTROSE (POLY...	2396	DEXTROSE (POLYO	250 mg / __ mL	mL/hr
DOPAMINE 800 M...	2186	DOPAMINE 800 MG	400 mg / 250 mL	mcg/kg/min
HEPARIN 25 000 ...	1642	HEPARIN 25 000	7500 units / ___...	units/kg/hr
OXYTOCIN	537	OXYTOCIN	10 units / 1 mL	milliUnits/min
VASOPRESSIN	2530	VASOPRESSIN	20 units / 1 mL	units/min

2. Select a medication.
3. Click **View**.
4. Click **Close** to exit the screen.

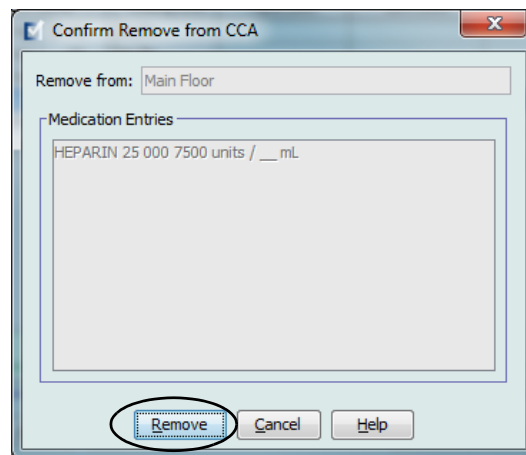
The screenshot shows the 'Target List: View Rule Set' window. The title bar reads 'Target List: View Rule Set'. The main area is titled 'Medication and Concentration' and contains a search field with the text 'Heparin Sod (Porcine) in D5W (8310002025) (25000 Units / 500 mL) {IV Soln}'. Below this are fields for 'Displayed Name 1', 'Displayed Name 2 (Optional)', 'Therapeutic Class', and 'Class ID'. A summary line reads 'Summary: Heparin Sod (Porcine 25000 units / 250 mL Dosed in milliUnits/kg/hr)'. There are checkboxes for 'No Concentration' and 'Diluent Only'. Below these are fields for 'Medication Amount', 'Medication Unit', and 'Diluent Amount: mL'. The 'Dose Rate Limits' section includes a 'Dosing Unit' dropdown, and fields for 'LHL:', 'LSL:', 'USL:', and 'UHL:'. The 'Bolus' section has radio buttons for 'Disabled', 'Simple', and 'Advanced'. The 'Therapies' section has checkboxes for 'Basic (Continuous)', 'Piggyback (Secondary)', and 'Multistep'.

### To remove a medication entry from a CCA:

1. Select the CCA containing the medication entry you want to remove from the **Target List** drop-down.



2. Select a medication.
3. Click **Remove** from CCA.
4. From the **Confirm Remove from CCA** pop-up, click **Remove**.



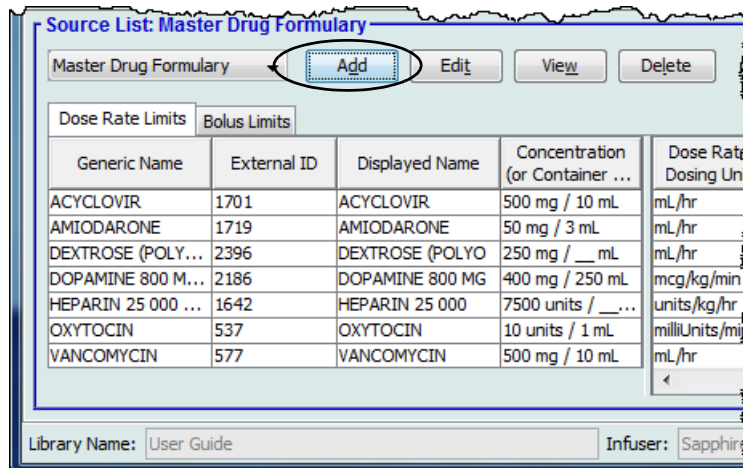
**Note:** The medication entry is not removed from the Master Drug Formulary.

## Working with the Master Drug Formulary

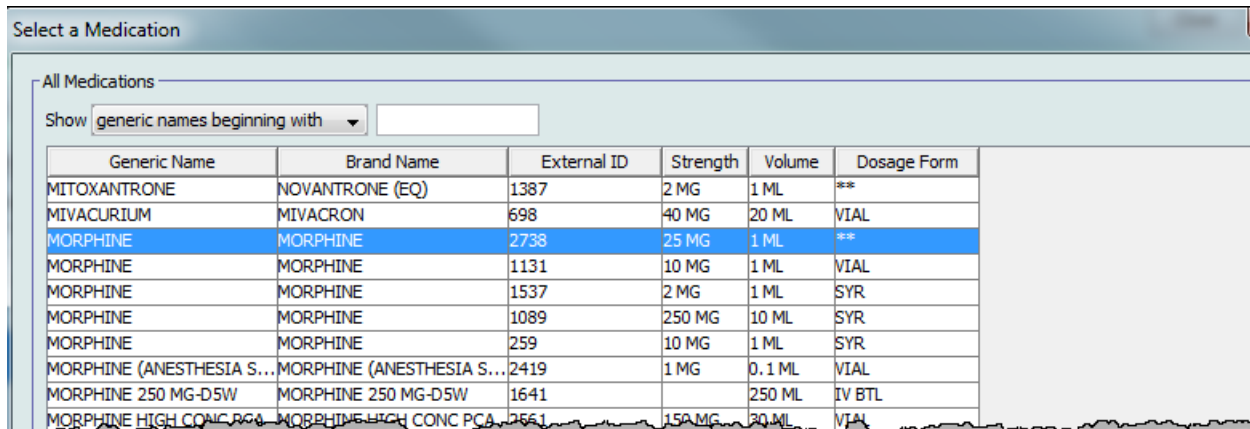
**Note:** Refer to the [Rule Set Fields](#) section on page 227 in this chapter for information on allowable ranges.

**To add a medication entry in the Master Drug Formulary:**

1. Select **Master Drug Formulary** as the Source List.
2. From the Source List, click **Add**.



3. Select the **Generic Name** for the medication list.



4. Click **Select Medication**.

**Note:** Selecting a **Generic Name** from the medication list automatically populates the **Displayed Name**, **External ID**, the **Therapeutic Class**, and the **Class ID** fields.

If the desired generic name is not in the **Generic Name** list, you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

**Note:** The **Displayed Name** can be edited once populated. The maximum number of characters in the **Displayed Name** is 40 for SapphirePlus 14.0 and 14.5 when using the two available fields.

You can either accept or edit the Displayed Name before continuing.

5. Configure the desired concentration values by either:
  - a. Checking **No Concentration**, or
  - b. Checking **Diluent Only**, or
  - c. Entering/selecting values for **Medication Amount**, **Medication Unit**, and **Diluent Amount**.

6. Set the **Dose Rate Limits** by selecting the Dosing Unit from the drop-down list; then enter the desired values for Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit.

**Note:** Dose Rate Limits are optional but Dosing Unit must be selected.

**For SapphirePlus 14.5 only:**

The **Maximum Dose Rate Unit** field is optional and is only enabled if you select a weight-based **Dosing Unit**. Once you enter a **Maximum Dose Rate Unit**, the **Maximum Dose Rate** field is enabled.

**Time Limits** are optional. Enter the desired values for Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit, using the hh:mm format.

**Note:** The **Time Limits** fields are disabled when **Multistep** is checked in **Therapies**.

The screenshot shows the 'Source List: Edit Rule Set' window for 'DOPamine (67)'. The 'Medication and Concentration' section includes fields for 'Generic Name', 'Displayed Name 1', 'Displayed Name 2 (Optional)', 'Therapeutic Class', and 'Class ID'. The 'Summary' is 'DOPamine 400 mg / 250 mL Dosed in mL/hr'. There are checkboxes for 'No Concentration' and 'Diluent Only'. The 'Dose Rate Limits' section has fields for 'Dosing Unit' (mL/hr), 'LHL', 'LSL', 'USL', 'UHL', 'Maximum Dose Rate Unit', and 'Maximum Dose Rate'. The 'Time Limits (hh:mm)' section has fields for 'LHL', 'LSL', 'USL', and 'UHL', with a note 'Not applicable for Multistep Therapies'. The 'Therapies' section has checkboxes for 'Basic (Continuous)', 'Piggyback (Secondary)', and 'Multistep'. The 'Delivery at End of Infusion' section has radio buttons for 'None / Stop', 'Continue Rate', and 'KVO', with a 'Default KVO Rate' of 1 [0, 1 - 20 mL/hr]. At the bottom, there are radio buttons for 'Bolus' options: 'Disabled' (selected), 'Simple', and 'Advanced'.

7. Select the **Bolus** option(s) if you want to set bolus dose limits for this medication (Optional). If you do not choose to set Enable Bolus, proceed to the next step.



## To set a SapphirePlus bolus:

Select from **Disabled**, **Simple**, or **Advanced** for the SapphirePlus 14.0 and 14.5.

- **Disabled**
- **Simple.** When this option is selected, the **Bolus Amount Limits** Unit field is available. Select a unit from the drop-down list and enter desired values for Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit.

The screenshot shows the 'Simple' bolus configuration. The 'Bolus' section has three radio buttons: 'Disabled', 'Simple' (selected), and 'Advanced'. Below it, the 'Bolus Amount Limits' section includes a 'Unit' dropdown menu and four input fields for LHL, LSL, USL, and UHL. The 'Dose Rate Limits' section at the top has a 'Dosing Unit' dropdown and four input fields for LHL, LSL, USL, and UHL. On the right, the 'Therapies' section has three checked checkboxes: 'Basic (Continuous)', 'Piggyback (Secondary)', and 'Multistep'. The 'Delivery at End of Infusion' section has three radio buttons: 'None / Stop', 'Continue Rate', and 'KVO' (selected). Below 'KVO' is a 'Default KVO Rate' field with the value '1' and a range '[0.1 - 20 mL/hr]'.

- **Advanced.** When the Advanced option is selected, the following fields are available:
  - Bolus Amount Limits Unit.** Select from the drop-down list and enter the desired values for Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit. This is a required field.
  - Bolus Time Limits:** Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit.
  - Select the **Bolus Dose Rate Limits** from the Dosing Unit drop-down list. Enter the desired values for Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit (optional).

The screenshot shows the 'Advanced' bolus configuration. The 'Bolus' section has three radio buttons: 'Disabled', 'Simple', and 'Advanced' (selected). Below it, the 'Bolus Amount Limits' section includes a 'Unit' dropdown menu, four input fields for LHL, LSL, USL, and UHL, and two additional fields for 'Maximum Bolus Amount Unit' and 'Maximum Bolus Amount'. The 'Bolus Time Limits (hh:mm)' section has four input fields for LHL, LSL, USL, and UHL. The 'Bolus Dose Rate Limits' section at the bottom has a 'Dosing Unit' dropdown and four input fields for LHL, LSL, USL, and UHL. A red error message 'Please specify Dosing Unit.' is displayed below the 'Bolus Dose Rate Limits' section. On the right, the 'Therapies' section has three checked checkboxes: 'Basic (Continuous)', 'Piggyback (Secondary)', and 'Multistep'. The 'Delivery at End of Infusion' section has three radio buttons: 'None / Stop', 'Continue Rate', and 'KVO' (selected). Below 'KVO' is a 'Default KVO Rate' field with the value '1' and a range '[0.1 - 20 mL/hr]'. At the bottom of the form are buttons for 'Save & Add Another', 'Save & Close', 'Cancel', and 'Help'. A number '7' is written to the left of the form, with a line pointing to the 'Please specify Dosing Unit.' error message.

8. For **Therapies**, check or uncheck Basic (Continuous), Piggyback (Secondary), and Multistep, as desired.

The screenshot shows the 'Therapies' section with the following options checked: Basic (Continuous), Piggyback (Secondary), and Multistep. The 'Delivery at End of Infusion' section has 'KVO' selected with a 'Default KVO Rate' of 1 [0.1 - 20 mL/hr]. The 'Dose Rate Limits' section shows a 'Dosing Unit' of 'Select' and fields for LHL, LSL, USL, and UHL. The 'Bolus' section has 'Advanced' selected. The 'Bolus Amount Limits' section has 'Unit' set to 'Select' and 'Maximum Bolus Amount' set to 'Maximum Bolus Amount:'. The 'Bolus Time Limits (hh:mm)' section has fields for LHL, LSL, USL, and UHL. The 'Bolus Dose Rate Limits' section has 'Dosing Unit' set to 'Select' and a red message 'Please specify Dosing Unit.' at the bottom. Buttons for 'Save & Add Another', 'Save & Close', 'Cancel', and 'Help' are at the bottom.

9. **Delivery at End of Infusion** (SapphirePlus 14.0 and 14.5). Select from None/Stop, Continue Rate or KVO (Default KVO rate is 0.1-20 mL/hr)

**For SapphirePlus 14.5 only:**

The screenshot shows the 'Patient Weight' section with 'Minimum' and 'Maximum' fields, both with a range of [0.1 - 500 kg]. The 'Dose Rate Limits' section shows a 'Dosing Unit' of 'milliUnits/kg/hr' and fields for LHL (10), LSL (28), USL (39), and UHL. The 'Bolus' section has 'Disabled' selected. The 'Delivery at End of Infusion' section has 'KVO' selected with a 'Default KVO Rate' of 1 [0.1 - 20 mL/hr]. The 'Other Settings' section has 'Enable Automatic Patient Lockout' unchecked. Buttons for 'Save & Add Another', 'Save & Close', 'Cancel', and 'Help' are at the bottom.

10. **Patient Weight** (For SapphirePlus 14.5 only) allows you to select the minimum and maximum weight for a patient. The defaults are blank for minimum and blank for maximum. If no values are entered, the range will be determined by the values set in the CCA settings.

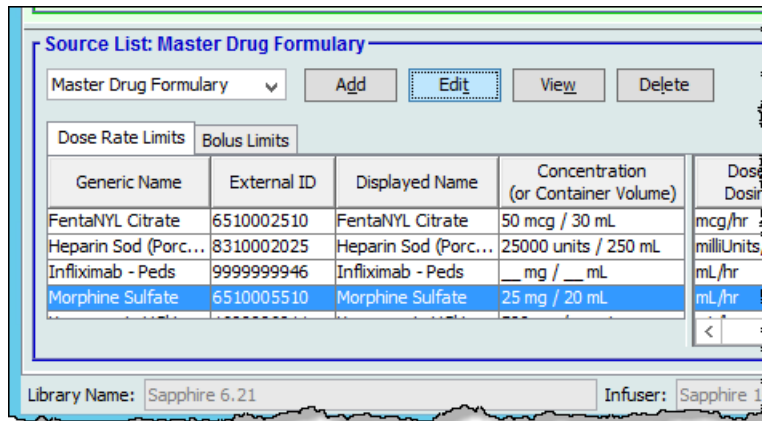
11. **Other Settings** (For SapphirePlus 14.5 only) When checked, **Enable Automatic Patient Lockout** prevents a patient from altering this rule set. However, if you have checked Enable Automatic Patient Lockout in CCA Settings the rule set option is overridden as the specific CCA will incorporate this feature.

12. Click **Save & Add Another** or **Save & Close** to add the medication entry to the CCA.

**Note:** When a medication entry is added to the Master Drug Formulary, it is not assigned to a CCA.

### To edit a medication entry in the Master Drug Formulary:

1. Select **Master Drug Formulary** from the Source List.
2. From the Source List, select the medication entry you want to edit.
3. Click **Edit**.



**Helpful Hint:** You can also double-click a medication entry to display the **Rule Set** dialog box.

4. Make any desired changes.

**Source List: Edit Rule Set**

Medication and Concentration

Generic Name (External ID) (Strength / Volume) {Dosage Form}:  
 Morphine Sulfate (6510005510) (25 mg / 20 mL) Select

Displayed Name 1: Morphine Sulfate  
 Displayed Name 2 (Optional):  
 Therapeutic Class: OPIATE AGONISTS  
 Class ID: 28080800

**Summary: Morphine Sulfate 25 mg / 20 mL Dosed in mL/hr**

No Concentration

Diluent Only

Medication Amount: 25 Medication Unit: mg Diluent Amount: mL: 20

Dose Rate Limits

Dosing Unit: mL/hr LHL: LSL: USL: UHL:

**Bolus:**  Disabled  Simple  Advanced

Therapies

Basic (Continuous)  
 Piggyback (Secondary)  
 Multistep

5. Click **Save & Close** to save your changes.

**Note:** When a medication entry is edited, the changes are reflected in the Master Drug Formulary and a pop-up displays the CCAs that are affected.

If the medication entry that is edited is assigned to only one CCA, the medication entry will also be updated in the Master Drug Formulary. If the medication entry that is edited is assigned to more than one CCA, a new medication entry will be created in the Master Drug Formulary.

### To view a medication entry in the Master Drug Formulary:

1. Select **Master Drug Formulary** from the Source List.
2. From the Source List, select the medication entry you want to view.
3. Click **View**.

Source List: Master Drug Formulary

Master Drug Formulary [Add] [Edit] [View] [Delete]

Dose Rate Limits | Bolus Limits

Generic Name	External ID	Displayed Name	Concentration (or Container Volume)	Dose Dosing
Amiodarone HCl	3540000500	Amiodarone HCl	50 mg / 3 mL	mg/min
Dextrose 5%	9999999993	Dextrose 5%	250 mg / __ mL	mL/hr
DOPamine in D5W	3800002011	DOPamine in D5W	400 mg / 250 mL	mcg/kg/min
FentaNYL Citrate	6510002510	FentaNYL Citrate	50 mcg / 30 mL	mcg/hr
Heparin Sod (Porc...	8310002025	Heparin Sod (Porc...	25000 units / 250 mL	milliUnits/kg
Infliximab - Peds	9999999946	Infliximab - Peds	__ mg / __ mL	mL/hr
Morphine Sulfate	6510005510	Morphine Sulfate	25 mg / 20 mL	mL/hr
Vancomycin HCl in...	1600006011	Vancomycin HCl in...	500 mc / mL	mL/hr

Library Name: Sapphire 6.21 Infuser:

4. Click **Close**.

Source List: View Rule Set

Medication and Concentration

**Generic Name (External ID) (Strength / Volume) (Dosage Form):**  
Morphine Sulfate (6510005510) (25 mg / 20 mL) [Select]

Displayed Name 1: Morphine Sulfate  
Displayed Name 2 (Optional):  
Therapeutic Class: OPIATE AGONISTS  
Class ID: 28080800

**Summary: Morphine Sulfate 25 mg / 20 mL Dosed in mL/hr**

No Concentration

Diluent Only

Medication Amount: 25 Medication Unit: mg Diluent Amount: 20 mL

Dose Rate Limits

Dosing Unit: mL/hr LHL: LSL: USL: UHL:

**Bolus:**  Disabled  Simple  Advanced

Therapies

Basic (Continuous)  
 Piggyback (Secondary)  
 Multistep

### To delete a medication entry from the Master Drug Formulary:

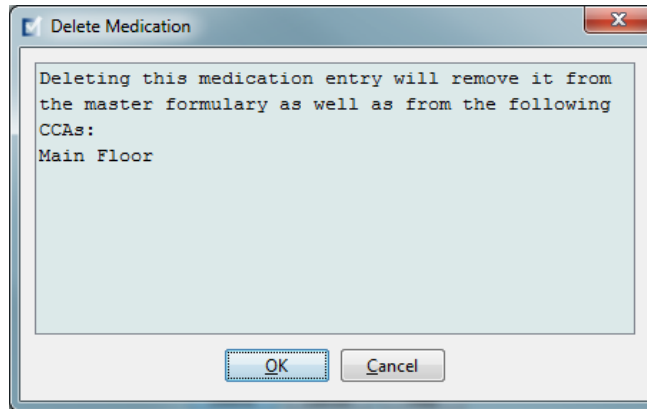
1. Select **Master Drug Formulary** from the Source List.
2. From the Source List, select the medication entry you want to delete.
3. Click **Delete** from Master Formulary.

Generic Name	External ID	Displayed Name	Concentration (or Container ...)	Dose Rate Dosing Unit
DEXTROSE (POLY...	2396	DEXTROSE (POLYO	250 mg / __ mL	mL/hr
DOPAMINE 800 M...	2186	DOPAMINE 800 MG	400 mg / 250 mL	mcg/kg/min
HEPARIN 25 000 ...	1642	HEPARIN 25 000	7500 units / _...	units/kg/hr
MORPHINE PCA	594	MORPHINE PCA	30 mg / 30 mL	mL/hr
OXYTOCIN	537	OXYTOCIN	10 units / 1 mL	milliUnits/min
VANCOMYCIN	577	VANCOMYCIN	500 mg / 10 mL	mL/hr
VASOPRESSIN	2530	VASOPRESSIN	20 units / 1 mL	units/min

4. Click **Delete**.

A **Delete Medication** pop-up displays only if a CCA is affected. If not, the entry is deleted and there is no confirmation.

5. Click **OK**.



## To copy to a Target CCA:

1. Select a medication entry from the Master Drug Formulary.

**Note:** A Target List CCA must be selected before you can copy a medication entry to a Target CCA from the Master Drug Formulary.

2. Click **Copy to Target CCA**.

Source List: Master Drug Formulary

Master Drug Formulary Add Edit View Delete Copy to Target CCA

Generic Name	External ID	Displayed Name	Concentration (or Container ...	Dose Rate Dosing Unit	Dose Rate Lower Hard Limit	Dose Rate Lower Soft Limit	Dose Rate Upper Soft Limit
ACYCLOVIR	1701	ACYCLOVIR	500 mg / 10 mL	mL/hr			
AMIODARONE	1719	AMIODARONE	50 mg / 3 mL	mL/hr			
DEXTROSE (POLY...	2396	DEXTROSE (POLYO	250 mg / __ mL	mL/hr			
DOPAMINE 800 M...	2186	DOPAMINE 800 MG	400 mg / 250 mL	mcg/kg/min			1
HEPARIN 25 000 ...	1642	HEPARIN 25 000	7500 units / __...	units/kg/hr		5	30
MORPHINE PCA	594	MORPHINE PCA	30 mg / 30 mL	mL/hr			
OXYTOCIN	537	OXYTOCIN	10 units / 1 mL	milliUnits/min			

Library Name: User Guide Infuser: Sapphire 13.x Status: Worksheet Modified: Jul 11 201

3. Click **Copy** on the **Confirm Copy to CCA** pop-up.

Confirm Copy to CCA

Copy from: Master Drug Formulary

Copy to: Main Floor

Medication Entries

AMIODARONE 50 mg / 3 mL

Copy Cancel Help

## Notes:



# Chapter 13: Master Infuser Setup

## Plum 360 Master Infuser Settings

The Plum 360 Master Infuser Settings view allows you to select the following infuser settings:

- Continue Rate
- Callback Notification
- Deliver Together
- Force Pump to Accept Drug Library During Power Down
- Auto-program Rejection Reason Timeout (seconds)
- Maximum Standby Time (hours)
- Default Clinical Use

To display the **Master Infuser Settings** view, open a Worksheet and click the **Master Infuser Setup** tab. (For instructions on opening a Worksheet, see [Chapter 5: The Library Directory](#) on page 35).

### Continue Rate

The *Continue Rate* setting allows you to select the default rate the infuser switches to after a therapy has completed. The Continue Rate options are *KVO* and *Rate*. *KVO* (Keep Vein Open) is a very low rate (1 mL/hr) that reduces the potential for clotting at the infusion site. *Rate* is the same delivery rate as the completed therapy. The Continue Rate setting can be changed when programming the infuser:

- Select **KVO** to make the default continue rate KVO.
- Select **Rate** to make the default continue rate the same as the completed therapy's rate.

## Callback Notification

The *Callback Notification* setting, when enabled, causes the infuser to emit an audible nurse callback alarm and display a notification between steps of a multi-step infusion, a piggyback infusion, or after a loading dose. The default Callback Notification setting is **No** (disabled). This setting can be changed when manually programming the infuser. For more information on nurse callback alarms, refer to the infuser's system operating manual.

## Deliver Together

The *Deliver Together* setting allows you to choose the default two-line delivery method. This functionality defines the default relationship between Line A and Line B on the infuser. The Deliver Together options are **Piggyback** and **Concurrent**. When Piggyback is selected, Line A delivery stops while Line B infuses. Line A delivery resumes when Line B delivery is complete. When Concurrent is selected, both lines infuse at the same time. The Deliver Together setting can be changed when programming the infuser.

- Select **Piggyback** to make the default deliver together setting piggyback
- Select **Concurrent** to make the default deliver together setting concurrent

## Force Pump to Accept Drug Library During Power Down

This setting determines if the infuser will automatically install a new Medication Library upon infuser turn off. If setting is **Yes**, the infuser will install library without prompting user during power down. The default setting is **No**.

## Auto-program Rejection Reason Timeout (seconds)

When an auto-program is rejected by ICU Medical MedNet, a rejection reason appears on the infuser to notify the nurse that the auto-program has been rejected prior to sending to the infuser. The timeout setting allows you to set the length of time the message will remain on the infuser's screen. The range is 10-30 seconds and the default is 15 seconds.

## Maximum Standby Time (hours)

The *Maximum Standby* setting allows you to select the period of time the infuser can wait before beginning a therapy. The Standby setting *cannot* be overridden when programming the infuser.

---

**Note:** This setting affects both delayed start and standby. If enabled, both will be available at the infuser. If disabled, neither will be available at the infuser.

---

The range is 24 to 72 hours in one-hour increments. The default is 72 hours.

## Default Clinical Use

The *Default Clinical Use* setting allows you to change the “NOT SPECIFIED” value entered in a CCA to the Default Clinical Use you enter.

---

**Note:** The value entered as Default will be attributed to ALL entries marked “NOT SPECIFIED” in all CCAs and in the Master Drug Formulary.

---

**To configure the master infuser settings:**

1. Click the **Master Infuser Setup** tab.
2. Select the desired option for each setting.
3. When finished making selections, click **Save**.

The screenshot shows the 'Master Infuser Setup' window with the following settings:

- Continue Rate:**  KVO,  Rate
- Callback Notification:**  Yes,  No
- Deliver Together:**  Piggyback,  Concurrent
- Force Pump to Accept Drug Library During Power Down:**  Yes,  No
- Auto-program Rejection Reason Timeout (seconds):** Timeout:  [10 - 30]
- Maximum Standby Time (hours):** Maximum Standby Time:  [24 - 72]
- Default Clinical Use:**   
NOTE: If the Clinical Use field in a rule set is blank then the Clinical Use will be updated with the value entered here. Updating this field will update the Clinical Use in rule sets that use this default Clinical Use.

Buttons: Restore Default Values, Save, Cancel, Close, Help

Footer: Library Name: User Guide, Infuser: Plum 360 15.1x, Status: Worksheet, Modified: May 10 2016 04:55PM, Mode: Edit, User: mednet\_admin

**Note:** To save changes to the master infuser settings, you must click **Save** before navigating away from the **Master Infuser Settings** view.

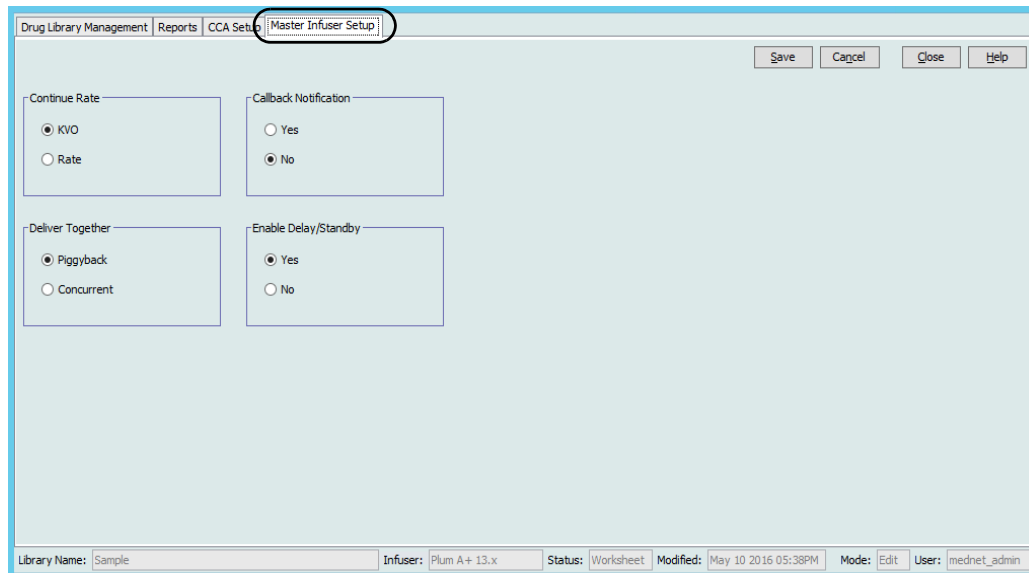
The selections made in the Master Infuser Settings view apply to all CCAs in the library.

# Plum A+ Master Infuser Settings

The Plum A+ Master Infuser Settings view allows you to select the following infuser settings:

- Continue Rate
- Callback Notification
- Deliver Together
- Enable Delay/Standby

To display the **Master Infuser Settings** view, open a Worksheet and click the **Master Infuser Setup** tab. (For instructions on opening a Worksheet, see [Chapter 5: The Library Directory](#) on page 35).



## Continue Rate

The *Continue Rate* setting allows you to select the default rate the infuser switches to after a therapy has completed. The Continue Rate options are *KVO* and *Rate*. *KVO* (Keep Vein Open) is a very low rate (1 mL/hr) that reduces the potential for clotting at the infusion site. *Rate* is the same delivery rate as the completed therapy. The Continue Rate setting can be changed when programming the infuser:

- Select **KVO** to make the default continue rate KVO.
- Select **Rate** to make the default continue rate the same as the completed therapy's rate.

## Callback Notification

The *Callback Notification* setting, when enabled, causes the infuser to emit an audible nurse callback alarm and display a notification between steps of a multi-step infusion, a piggyback infusion, or after a loading dose. The default Callback Notification setting is **No** (disabled). This setting can be changed when manually programming the infuser. For more information on nurse callback alarms, refer to the ICU Medical Plum A+/A+ 3 System Operating Manual.

## Deliver Together

The *Deliver Together* setting allows you to choose the default two-line delivery method. This functionality defines the default relationship between Line A and Line B on the infuser. The Deliver Together options are **Piggyback** and **Concurrent**. When Piggyback is selected, Line A delivery stops while Line B infuses. Line A delivery resumes when Line B delivery is complete. When Concurrent is selected, both lines infuse at the same time. The Deliver Together setting can be changed when programming the infuser.

- Select **Piggyback** to make the default deliver together setting piggyback
- Select **Concurrent** to make the default deliver together setting concurrent

## Enable Delay/Standby

The *Enable Delay/Standby* setting allows you to select the standby setting, **Yes** (enabled) or **No** (disabled). When enabled, the infuser can be programmed to wait for a period of time before beginning a therapy. When disabled, the option to program a waiting period before a therapy begins is not available. The Standby setting *cannot* be overridden when programming the infuser.

**Note:** This setting affects both delayed start and standby. If enabled, both will be available at the infuser. If disabled, neither will be available at the infuser.

- Select **Yes** to enable Delay/Standby
- Select **No** to disable Delay/Standby

The screenshot shows the 'Master Infuser Setup' dialog box. It has a title bar with tabs for 'Drug Library Management', 'Reports', 'CCA Setup', and 'Master Infuser Setup'. In the top right corner, there are buttons for 'Save', 'Cancel', 'Close', and 'Help'. The main area contains four sections, each with a title and two radio button options:

- Continue Rate:** Radio buttons for 'KVO' (selected) and 'Rate'.
- Callback Notification:** Radio buttons for 'Yes' and 'No' (selected).
- Deliver Together:** Radio buttons for 'Piggyback' (selected) and 'Concurrent'.
- Enable Delay/Standby:** Radio buttons for 'Yes' (selected) and 'No'.

At the bottom of the dialog, there is a status bar with the following information: Library Name: Sample, Infuser: Plum A+ 13.x, Status: Worksheet, Modified: May 10 2016 05:38PM, Mode: Edit, User: mednet\_admin.

**To configure the master infuser settings:**

1. Click the **Master Infuser Setup** tab.
2. Select the desired option for each setting.
3. When finished making selections, click **Save**.

The screenshot shows the 'Master Infuser Setup' dialog box. The 'Master Infuser Setup' tab is selected and circled. The settings are as follows:

- Continue Rate:**  KVO,  Rate
- Callback Notification:**  Yes,  No
- Deliver Together:**  Piggyback,  Concurrent
- Enable Delay/Standby:**  Yes,  No

Buttons: Save, Cancel, Close, Help

Status bar: Library Name: Sample, Infuser: Plum A+ 13.x, Status: Worksheet, Modified: May 10 2016 05:38PM, Mode: Edit, User: mednet\_admin

**Note:** To save changes to the master infuser settings, you must click **Save** before navigating away from the **Master Infuser Settings** view.

The selections made in the Master Infuser Settings view apply to all CCAs in the library.

# LifeCare PCA Master Infuser Settings

The LifeCare PCA Master Infuser Settings view allows you to select the following infuser settings:

- Nurse Call Relay Contacts
- Purge Capability
- PCA Tone
- History Format
- Clock Format
- Alarm Sounds

To display the Master Infuser Settings view, open a Worksheet and click the **Master Infuser Setup** tab. (For instructions on opening a Worksheet, see [Chapter 5: The Library Directory](#) on page 35).

The screenshot shows the 'Master Infuser Setup' window with the following settings:

- Nurse Call Relay Contacts:**  Normally Open,  Normally Closed
- PCA Tone:**  Key tone on successful request only,  Different Accept/Reject tones,  Same key tone on all PCA requests
- Alarm Sounds:**  Alarm 1,  Alarm 2,  Alarm 3,  Alarm 4,  Alarm 5
- History Format:**  1 & 24 hours,  Hour by hour
- Clock Format:**  12-hour Clock,  24-hour Clock
- Purge Capability:**  Enabled,  Disabled

Buttons: Save, Cancel, Close, Help

Status Bar: Library Name: PCA, Infuser: LifeCare PCA 5.x/7.x, Status: Worksheet, Modified: May 10 2016 07:13PM, Mode: Edit, User: mednet\_admin

## Nurse Call Relay Contacts

The *Nurse Call Relay* setting allows you to set up the nurse call relay system. The pump needs to be connected to the nurse call relay system in the hospital using the jack on the rear of the pump.

The proper configuration (**Normally Open** or **Normally Closed**) will depend on how the health care facility has set up their particular nurse call relay system. The default setting is **Normally Open**.

## History Format

The History Format setting allows you to select the format of the history (infusions, PCA doses, and event log) when viewed on the pump screen.

- **1 & 24 hours**– shows infusion summary for the last one and 24 hours
- **Hour by hour** – shows infusion summary by hour

The default is 1 & 24 hours.

## Purge Capability (applies to the LifeCare PCA 5.x only)

The Purge Capability setting allows you to enable the screen prompts on the pump to ask if the clinician would like to purge the set before programming the pump. The default is Enabled.

## PCA Tone

The PCA Tone setting allows you to determine what tones are emitted from the pump when the pendant is pressed by the patient. A successful request means a PCA dose was delivered to the patient, while a Reject means a PCA dose was not delivered (because it was during the lockout period). The default is Different Accept/Reject tones.

- **Key tone on successful request only** – An audible beep is heard when a PCA dose is successfully administered.
- **Different Accept/Reject tones** – A different audible beep is heard when a PCA dose is accepted or rejected. This is the default setting.
- **Same key tone on all PCA requests** – The same audible beep is heard regardless of whether a PCA dose was successful or rejected.

## Clock Format

The Clock Format setting allows you to set the display of the clock to either a 12-hour or a 24-hour format. The default is a 24-hour Clock format.

## Alarm Sounds

For the LifeCare PCA 5.x only: The Alarm Sounds setting allows you to select different rhythms or cadences for the alarms on the pump. This allows you to differentiate the pump alarm sound from other devices. There are five sounds available. The default is Alarm 1. There is only one alarm sound enabled for the LifeCare PCA 7.x.

---

**Note:** To save changes to the master infuser settings, you must click **Save** before navigating away from the **Master Infuser Settings** view.

The selections made in the Master Infuser Settings view apply to all CCAs in the library.

---



# SapphirePlus 14.0 Master Infuser Settings

The SapphirePlus Master Infuser Setup allows the setting of passwords authorizing different levels of programming options. Each level allows actions on that level and lower level.

The screenshot shows the 'Master Infuser Setup' dialog box. It features a title bar with tabs for 'Drug Library Management', 'Reports', 'CCA Setup', and 'Master Infuser Setup'. The main area is divided into three sections:

- Device-Level Passwords:** Contains three password fields: 'High Level: 7770 [1000 - 7000, 7770]', 'Medium Level: 8880 [1000 - 7000, 8880]', and 'Low Level: 9990 [1000 - 7000, 9990]'. Below these is a 'Preprogram: 7770 [1000 - 9999]' field.
- Reduced Access Passwords:** This section is currently empty.
- Infuser Settings:** Contains two checked checkboxes: 'Enable New Patient' and 'Enable US Format'.

At the bottom of the dialog, a status bar displays the following information: Library Name: Sapphire 14.0, Infuser: Sapphire 14.0x, Status: Worksheet, Modified: Jan 20 2017 11:01AM, Mode: Edit, User: mednet\_admin. Action buttons for 'Restore Default Values', 'Save', 'Cancel', 'Close', and 'Help' are located in the top right corner.

The device authorization levels are:

**High Level and Preprogram Levels:** allow full access for all tasks and configuration settings. High level authorized personnel can reset the lock level of the infuser.

**Medium Level:** allows basic programming options, such as starting infusions, repeating the last infusion and priming the infuser. No new infusion can be started with this level password.

**Low Level:** has no programming options and no ability to change any setting. However, at this level, the infuser can be stopped and infusion allowed to continue.

---

**Note:** All levels can administer a patient bolus.

---

Please refer to the SapphirePlus 14 literature for additional details of allowable functions per level.

## Infuser Settings

**Enable New Patient** is the default setting.

**Enable US Format** sets the format to a 12-hour clock (AM/PM time setting) and US date format of month/ day/year. If unchecked, the format is a 24-hour clock and a date format of day/month/ year.

# SapphirePlus 14.5 Master Infuser Settings

SapphirePlus 14.5 Master Infuser Setup also allows the setting of passwords authorizing different levels of programming options. Each level allows actions on that level and lower level.

The device authorization levels are:

**High Level and Preprogram Levels:** allow full access for all tasks and configuration settings. High level authorized personnel can reset the lock level of the infuser.

**Medium Level:** allows basic programming options, such as starting infusions, repeating the last infusion and priming the infuser. No new infusion can be started with this level password.

**Low Level:** has no programming options and no ability to change any setting. However, at this level, the infuser can be stopped and infusion allowed to continue.

---

**Note:** All levels can administer a patient bolus.  
Please refer to the SapphirePlus 14.5 literature for additional details of allowable functions per level.

---

## Infuser Settings

**Enable New Patient** is the default setting.

### Date/Time

**Clock Format:** You can use the default 12-hour Clock (AM/PM time setting) or select the 24-hour Clock.

**Date Format:** Select the default US date format of month, day, year (mm/dd/yy) or select day, month, year (dd/mm/yy).

## Notes:

# Appendix A: ICU Medical MedNet Integrator

## Overview

ICU Medical MedNet Integrator provides interfaces to a hospital's enterprise level applications and serves as the conduit for the exchange of data between infusers, the ICU Medical MedNet server, and a variety of hospital information systems.

When interfaced to a BCMA system, ICU Medical MedNet Integrator supports electronic documentation of IV administration events into the patient record. This integration also allows the BCMA system to incorporate the IV infusion rate into the five Rights verification process.

The workflow for the clinician is as follows:

- Scan the patient identification, the medication container, and the pump using the BCMA application and its bar code scanner
- Program the infuser based on the physician's order
- Confirm the programming and start the infusion

---

**Note:** Depending on the BCMA system, scanning of the patient, medication, and pump may also occur after the infusion has been started.

---

Once the infusion has started, ICU Medical MedNet sends the program values (medication/concentration, dose, rate, volume to be infused, and duration) back to the BCMA system for review by the clinician, verification, and electronic charting.

---

**Note:** The specific functionality available to you will depend on your institution's ICU Medical MedNet software license.

---

## Setting up ICU Medical MedNet Integrator for BCMA integration

Define a bar code strategy for identifying each channel of the infusers that will be used; affix the bar code label to each channel.



**WARNING:** To ensure that information is sent to the Bar Code Medication Administration (BCMA) system from the correct infuser, ICU Medical strongly recommends that before go-live with ICU Medical MedNet™ Integrator™ you verify the bar code label affixed to each infuser corresponds to the correct channel.

**Important:** Please compare the infuser data on the infuser with the data received from the BCMA. In the event of a discrepancy, please chart the infuser data manually.

## Notes:

# Glossary

Active Drug Library	Worksheet that has been finalized and is available to send to infusers
Alert Forwarding	Alert Forwarding may also be referred to as Alarm Forwarding: Alert Forwarding is the ability to send IV device alarm data to EHR or Alarm Management Systems. Clinicians can now receive secondary alerts remotely and retain the ability to identify the specific device, patient and alert type involved.
Archived Drug Library	Previously active library
BCMA	Bar Code Medication Administration
Callback Notification	Setting that configures the infuser to emit an audible tone
CCA (Clinical Care Area)	A CCA may be the same as a physical nursing unit or may encompass a patient population. For example, the following may be defined as CCAs: ICU, Blood Products, Med/Surg, Orthopedics, Endoscopy, etc.
CE	Acronym for Connectivity Engine that allows the infuser to communicate with a wired or wireless network
Concurrent Delivery	Setting for Line B mode
Container Volume	Volume of the bag, bottle, syringe or vial used to define a medication entry
Continue Rate	Delivery rate after the VTBI amount has been infused
CSV file	Comma separated value file format used by the software for importing and exporting certain files
Custom Syringe or Vial	See LifeCare PCA Vial
Default Occlusion Pressure	Pressure at which the infuser will sound the distal occlusion alarm
Delayed Start	Programming option that allows the infusion to be started at a later time
Deliver Together	Setting that defines the type of delivery mode, piggyback or concurrent
Diluent Amount	Volume of fluid in which a medication is diluted
Distal Occlusion	Blockage between the infuser and the patient
Dose Limit (LifeCare PCA)	User-programmable parameter specifying the maximum amount of drug that can be administered via LifeCare PCA dose and continuous delivery in a programmable rolling time period consisting of discrete accumulation periods of six minutes  <b>Note:</b> When the default drug library is used, a 1-hour or 4-hour Dose Limit period may be selected in Biomed mode. When a user-defined drug library is used, a 1-hour, 4-hour, 6-hour, or 12-hour Dose Limit period may be specified for each medication.

Drug Library	Collection of medication entries and infuser settings that, when used with compatible infusers, may reduce the frequency of human errors by restricting the ways in which medications can be administered
Drug Library Worksheet	Drug library that can be edited but cannot be sent to infusers until it is finalized
Edit	The user responded to an alert by changing the value entered
EHR System	Electronic Health Records System
Enable Delay/Standby	Infuser setting for Plum A+ that allows the infuser to be programmed for a waiting period before a therapy begins
External ID	An identifier for a Medication. Each Medication in the Medication List must have a unique External ID
Finalized Drug Library	Drug library that has been approved for use on infusers and can no longer be changed
Finalization	The act of approving a Worksheet and making it the Active library
Full Rule Set	Type of rule set that allows medication entries to be configured with a medication name, complete or partial concentration, specific dosing unit, and corresponding dose rate limits
Hard Limit	Upper and/or lower limits for the selected medication and selected CCA that cannot be overridden (Plum A+ and LifeCare PCA)  It is recommended that hard limits be defined to prevent medication errors.  Hard limits may vary for different CCAs
Hard Limit Alert	An alert presented to the user when a hard limit is exceeded. The user's response depends on the infuser.
HIS	Hospital Information System
Infusion	Medication with a defined concentration that is administered via IV infusion to a patient.
Infusion Documentation	Infusion Documentation is an alternative name for Auto-Documentation  Is the feature that allows populating medication administration records, I&O flow sheet and dashboards with infusion events in an EHR system.
KVO (keep vein open)	Very low delivery rate that may reduce the potential for clot formation at the catheter tip
Label Only Rule Set	A Label Only rule set allows the clinician to see the medication name displayed on the infuser. There are no dosing limits associated with this rule set.  Label Only rule sets are not found in LifeCare PCA or SapphirePlus drug libraries.
LDAP	Lightweight Directory Access Protocol, a network protocol that enables applications to use a company's existing network directory listing for user names and passwords, thus allowing the company's network administrators to manage login access to multiple applications from one central source. For example, users can use their company's network login information with the same credentials (user name and password) to access ICU Medical MedNet Software



LifeCare PCA Lockout Interval	Programmed time interval specifying the minimum time that must pass after a loading dose or PCA dose (bolus) is administered; this time interval specifies when the next PCA dose can begin. Requests made during the lockout interval are denied.
LifeCare PCA Vial	Vial or syringe that is compatible with the LifeCare PCA infuser, which is either pre-filled and barcoded (standard) or filled and barcoded by the hospital pharmacy (custom)
Limited Rule Set	Type of rule set that allows medication entries to be configured with a medication name, diluent volume, and rate limits
Loading Dose	Dose which can be administered at any time by the clinician during the programmed therapy (LifeCare PCA only)
Master Drug Formulary	Comprehensive list of medications and rule sets defined for use in a drug library
Maximum Dose Rate	Highest rate at which the infuser can be programmed to run. This rate is defined as the upper hard limit
Medication Entry	Rule set defined for a unique combination of a medication and concentration
Medication List	List of medications used by the hospital. The Medication List is used to define drug libraries
Multistep	Programming option that allows delivery in steps or phases with different dosing parameters for each step
Occlusion	Blockage in the tubing set that prevents the infuser from infusing fluid into the patient. Possible causes of occlusions are kinked or plugged tubing
Override	The User acknowledged the alert and retains the values that triggered the soft alert. Hard alerts are not able to be overridden
Piggyback Mode	Programming option that allows the delivery of a secondary infusion while delivery from the primary infusion is suspended. When the secondary infusion has completed delivery of the volume to be infused, the primary infusion resumes delivery
Prime	Clear out or purge air from the tubing. Same as Purge
Program	A Program is any change in the infuser settings that triggers a user confirmation on the pump.
Protocols (LifeCare PCA)	Frequently used therapy settings which can be saved making it unnecessary for the clinician to program the same settings each time. Protocols are determined by the health care facility
Proximal Occlusion	Blockage between the infuser and the fluid IV infusion
Purge	Clear out or "purge" air from the tubing. Same as Prime
Report Options	Configurations entered by the user to define the desired report output. Examples include Time period, CCA, Medication, etc.
Rule Set	Constraints that are assigned to medication entries. The type of rule for the medication in the drug library. Rule sets can include both soft and hard limits.
Service Line	A designation used in reports to aggregate data across multiple CCAs or facilities. Each CCA is mapped to a Service Line. For example, a service line called Med/Surg may be used to examine data from the CCAs Four West, Five North, and Five East in a single hospital

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Smart Pump Programming	Smart Pump Programming functionality is integrated with a BCMA system using ICU Medical MedNet Programmer.  Smart Pump Programming is an alternative name for Auto-Programming
Soft Limit	Upper and/or lower dose limits for the selected medication and selected CCA that can be overridden. Soft limits for a particular medication may vary across CCAs
Soft Limit Alert	An alert presented to the user when a soft limit is exceeded. The user may choose to edit or override the value entered in response to the alert
Standby	Programming option that allows the infusion to be started at a later time. Similar to delayed start
Standard Syringe	See LifeCare PCA Vial
Value	Value can represent either dose or time, depending on the type of rule set that is reported.
Variance	Variance is a calculated value intended to represent how far away the user's initial programmed value was compared to the defined limit.  Variance is defined as $(Initial\ Value - Limit\ Violated) / Limit\ Violated$ . The result is expressed as a percentage and shown as a negative number for Lower Limit violations, and as a positive number for Upper Limit violations. 10,000% is the maximum displayable variance.
VTBI	Volume To Be Infused
Worksheet	Draft drug library that has not yet been finalized

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**Note:** Please refer to the System Operating Manual for information on each infuser

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**Notes:**



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