ICU Medical MedNet™ Meds™

User Guide

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.

430-98351-001 (B, 2017-11)

icumedical
human connections

Notes:

ICU Medical MedNet™ Meds™

User Guide

Rx Only

REF 16037-92-01

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

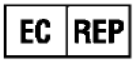
From our ICU Medical website, you can access the MedNet User Guides in the support section under *System Operating Manuals and Technical Service Manuals*.

Note: 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 Center.

Change History

Part Number	Description of Change
430-98351-001 (A, 2017-09)	Initial Release
430-98351-001 (B, 2017-11)	Updates to clarify terminology and fix help links

Note: 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 Center.

Symbols	Description
	Caution
	Warning
	CE Mark
	Catalogue Number
 **ICU Medical, Inc.** **600 North Field Drive,** **Lake Forest, IL 60045 USA**	Manufacturer
	Authorised Representative in the European Union
RxOnly	CAUTION: Federal (USA) law restricts this device to sale by or on the order of a doctor or other licensed practitioner
	Consult Instructions for Use
	Date of Manufacture

Note: 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 Center.

Notes:

Note: 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 Center.

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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.

Note: 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 Center.

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.

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.

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.

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.

Note: 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 Center.

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.

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.

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.

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

Transferring Data

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

Note: 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 Center.

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)

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

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

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.

Note: 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 Center.

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

Note: We recommend this configuration for test servers.

Note: 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 Center.

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 MB	40 GB	80 GB
Plum A+ 13.x	40 MB	20 MB	40 GB	80 GB
Plum 360 15.x	250 MB	125 MB	250 GB	500 GB
Q Core SapphirePlus 14.x	250 MB	125 MB	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.**

Note: 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 Center.

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

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

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

Note: 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 Center.

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_144
- JDK 1.8.0_144
- 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 described in this document are enabled by the software license agreement. Your license may not enable all of these features.

Note: 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 Center.

Chapter 2: Logging In and Out

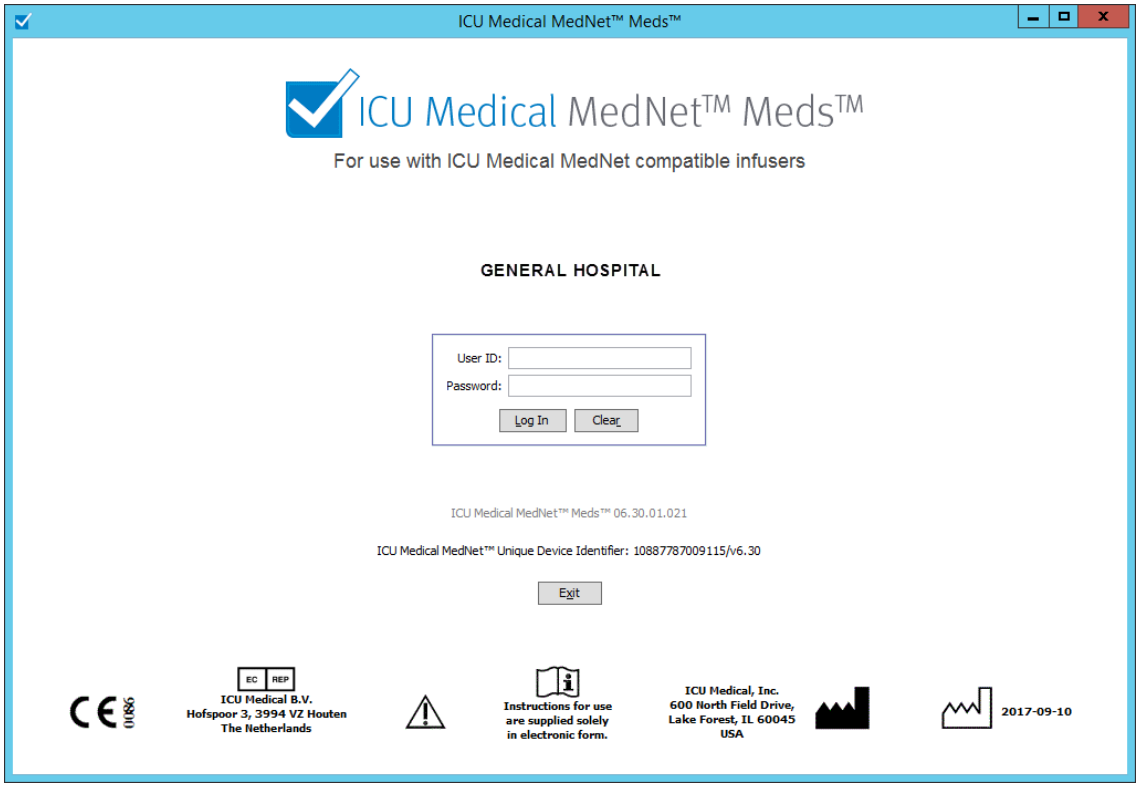
Logging In

To log into the ICU Medical MedNet Meds software:

1. Double-click the ICU Medical MedNet Meds 6.3 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 63, ensure the application was installed successfully.

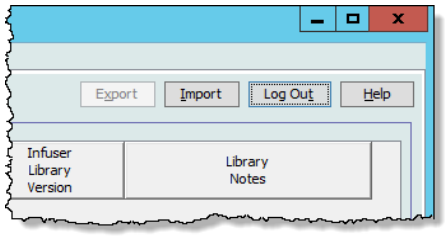
Important: As a protection against cyber attacks, five missed logins will result in the application inaccessible for five minutes. You will need to contact the system administrator in order to have the password reset after the five-minute lockout.

Note: 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 Center.

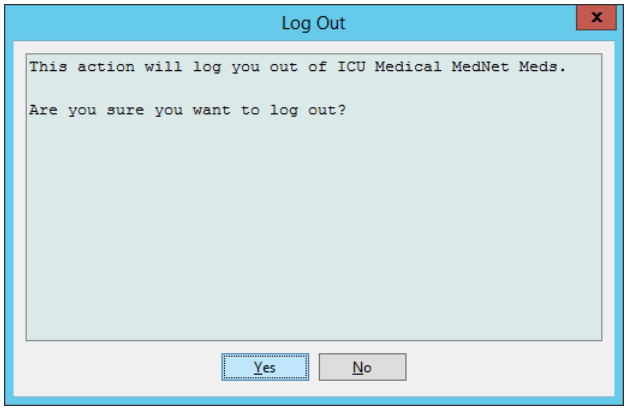
Logging Out and Exiting

To log out of ICU Medical MedNet Meds software:

1. Click **Log Out**.

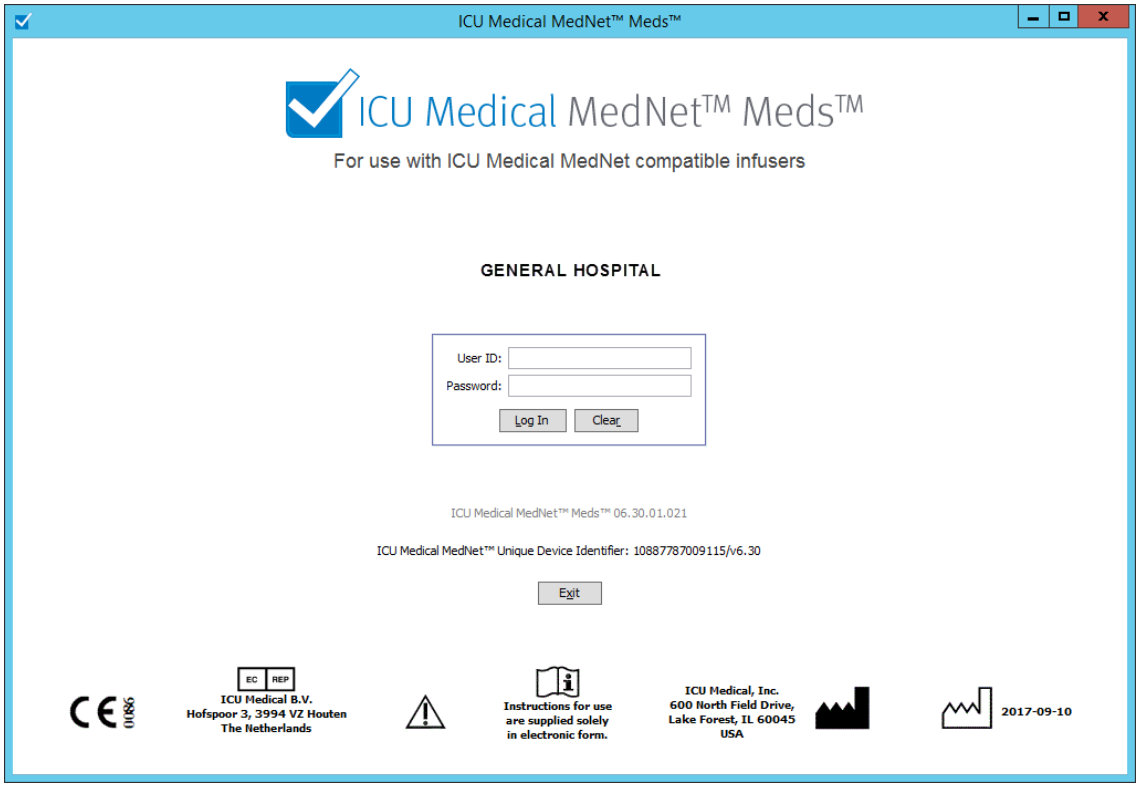


2. Click **Yes**.

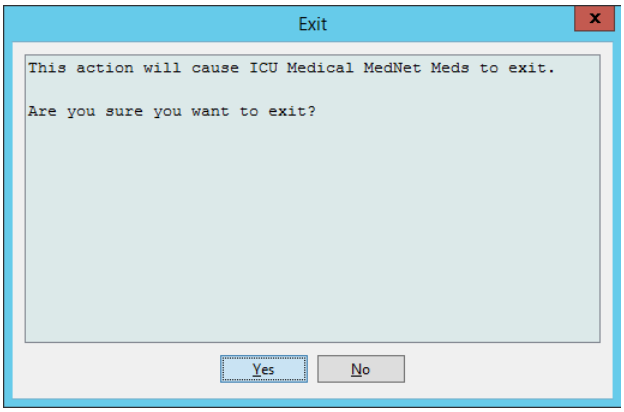


Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

3. Click **Exit**.



4. Click **Yes**.



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

Note: 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 Center.

Notes:

Note: 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 Center.

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.

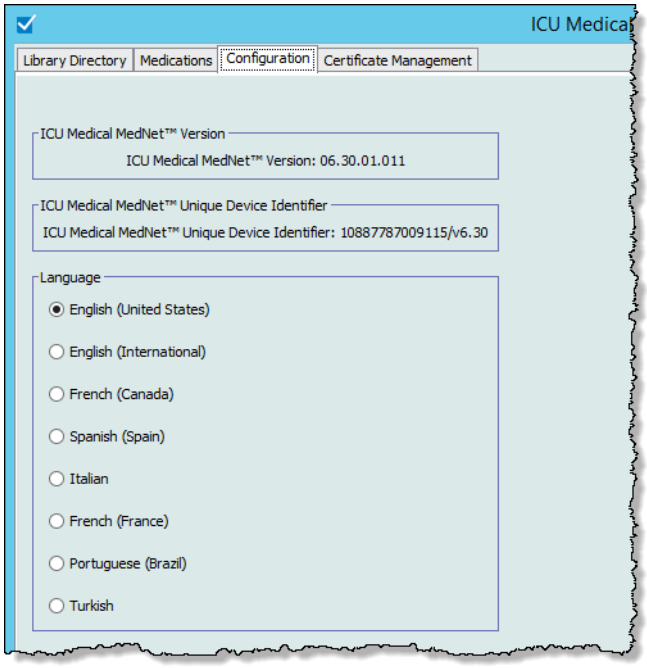
For English (United States), the date format is displayed as mmddyyyy, and the distal pressure unit is psi.

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.

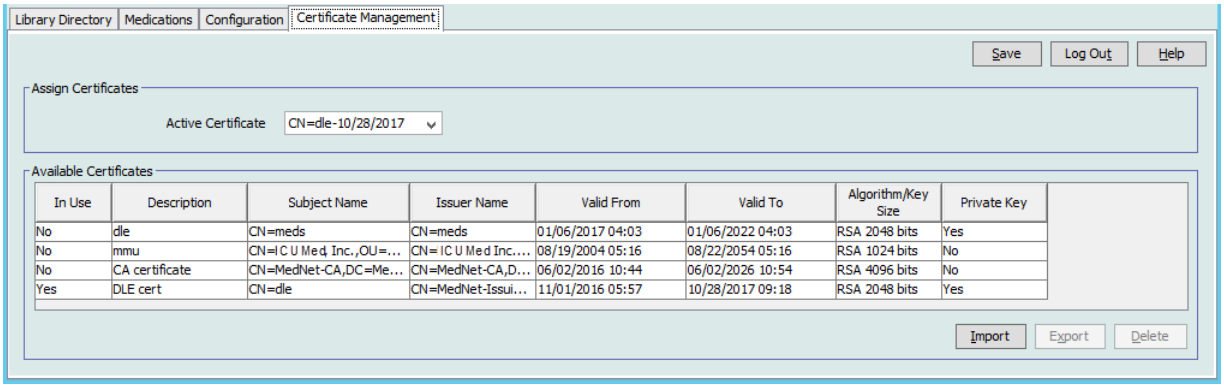
Note: The language selected in ICU Medical MedNet Meds will automatically apply to the ICU Medical MedNet Software.

Note: 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 Center.

Certificate Management

For added cybersecurity, we have added two main features: drug library digital signature and certificate management.

Important: Certificates are required in order to finalize drug libraries and to download a drug library to a Plum 360.
Detailed instructions regarding the installation of certificates are available from the Technical Support Center or your local ICU Medical representative.



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

PKCS #8 allows for several password based encryption algorithms. The supported algorithms are:

- no password
- PBEwithMD5andDES
- PBEwithSHA1and3KEYDESede
- PBEwithSHA1and40BITRC2

Note: You cannot import private keys using PKCS #8

Note: 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 Center.

Suitable for Export:

Format	Encoding DER encoded binary	Contents
X.509	Yes	Certificate only (no private key)
PKCS #7	Yes	Certificate chain only (no private key)
PKCS #12	Yes	Certificate with private key

We recommend the use of PKCS#12 for easier installation.

The following three files must be installed:

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

Important: Certificates have an expiration date and will need to be renewed.

Note: 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 Center.

Notes:

Note: 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 Center.

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.

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.

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.

Note: 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 Center.

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.

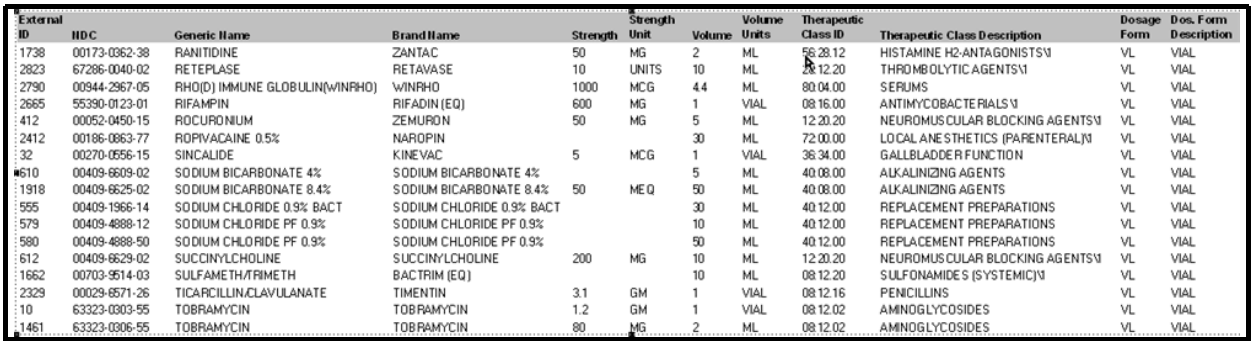
Note: External ID and Generic Name are the only fields in which data is required.

Field Name	Field Type	Number of Characters allowed[1]
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

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

Note: 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 Center.

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	NDC	Generic Name	Brand Name	Strength	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\I	VL	VIAL
2823	67286-0040-02	RETEPLASE	RETAVASE	10	UNITS	10	ML	28:12.20	THROMBOLYTIC AGENTS\I	VL	VIAL
2790	00944-2967-05	RHO(D) IMMUNE GLOBULIN(WINRHO)	WINRHO	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\I	VL	VIAL
412	00052-0450-15	ROCURONIUM	ZEMURON	50	MG	5	ML	12:20.20	NEUROMUSCULAR BLOCKING AGENTS\I	VL	VIAL
2412	00186-0863-77	ROPIVACAINE 0.5%	NAROPIN			30	ML	72:00.00	LOCAL ANESTHETICS (PARENTERAL)\I	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\I	VL	VIAL
1662	00703-9514-03	SULFAMETH/TRIMETH	BACTRIM (EQ)			10	ML	08:12.20	SULFONAMIDES (SYSTEMIC)\I	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	AMINOGLYCOSIDES	VL	VIAL
1461	63323-0306-55	TOBRAMYCIN	TOBRAMYCIN	80	MG	2	ML	08:12.02	AMINOGLYCOSIDES	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.

a. Is there an identifier for each drug that can be used for External ID?

b. Does each drug have a Generic Name that contains only the generic name (without strength, volume, or dosage form)?

c. 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.)

d. 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.

a. Ensure that all columns are present and are named correctly (even if there is no data contained in them).

b. Ensure that columns are in the proper order.

c. 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

Note: 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 Center.

Final check:

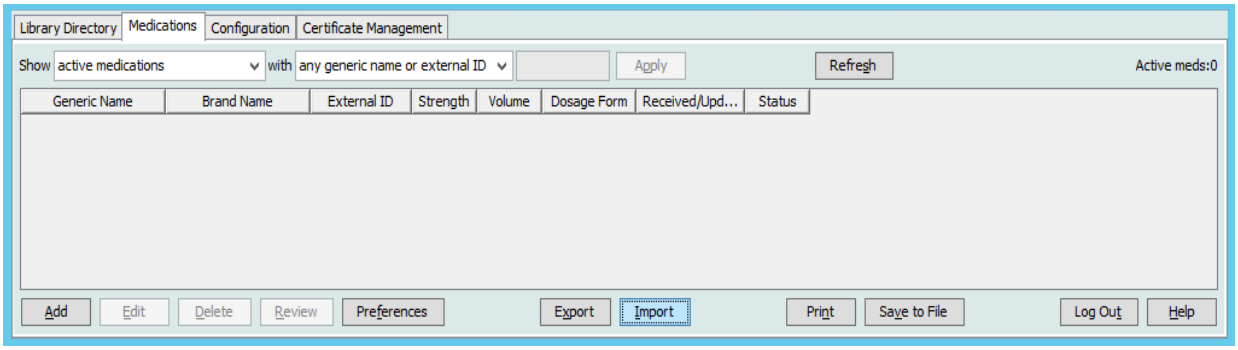
a. Sort file by External ID.
b. A particular External ID should only appear in one row in the file.
c. Ensure that each medication has data in both the External ID and Generic Name columns.
d. A Generic Name can appear multiple times in the file with different External IDs.

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 22.

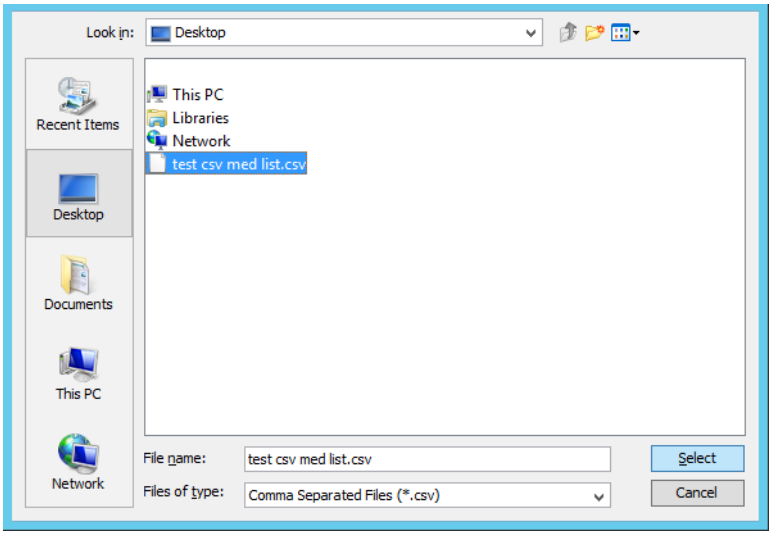
Once the file has been formatted as described above:

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



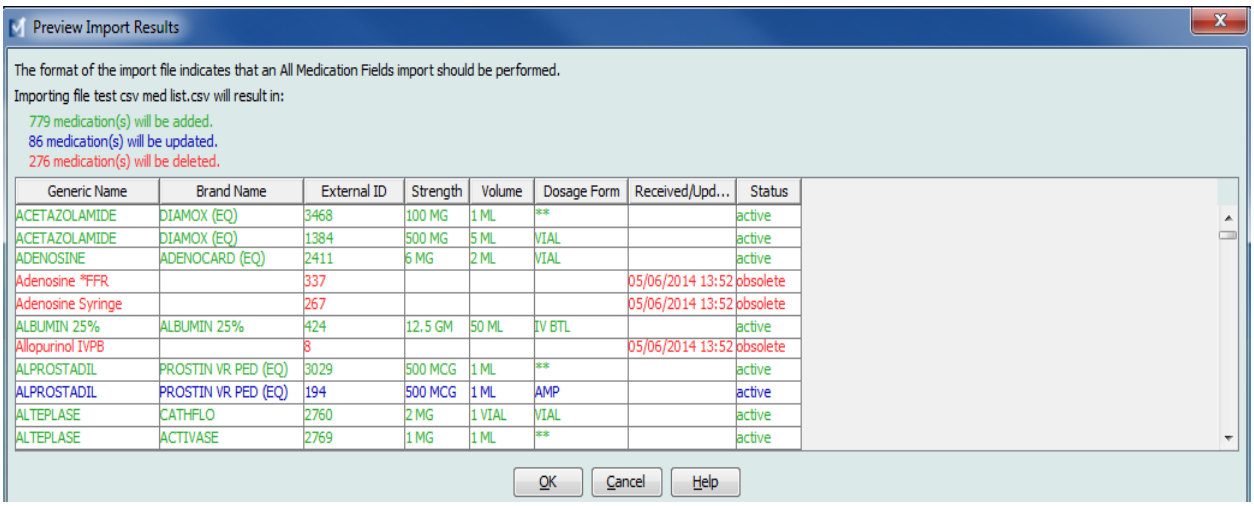
The File to Import screen displays.

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

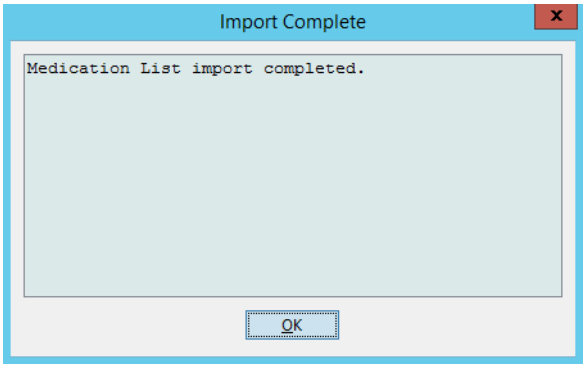


Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.

Note: 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 Center.

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.

Note: 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 Center.

Medication List View

The Medication List view displays:

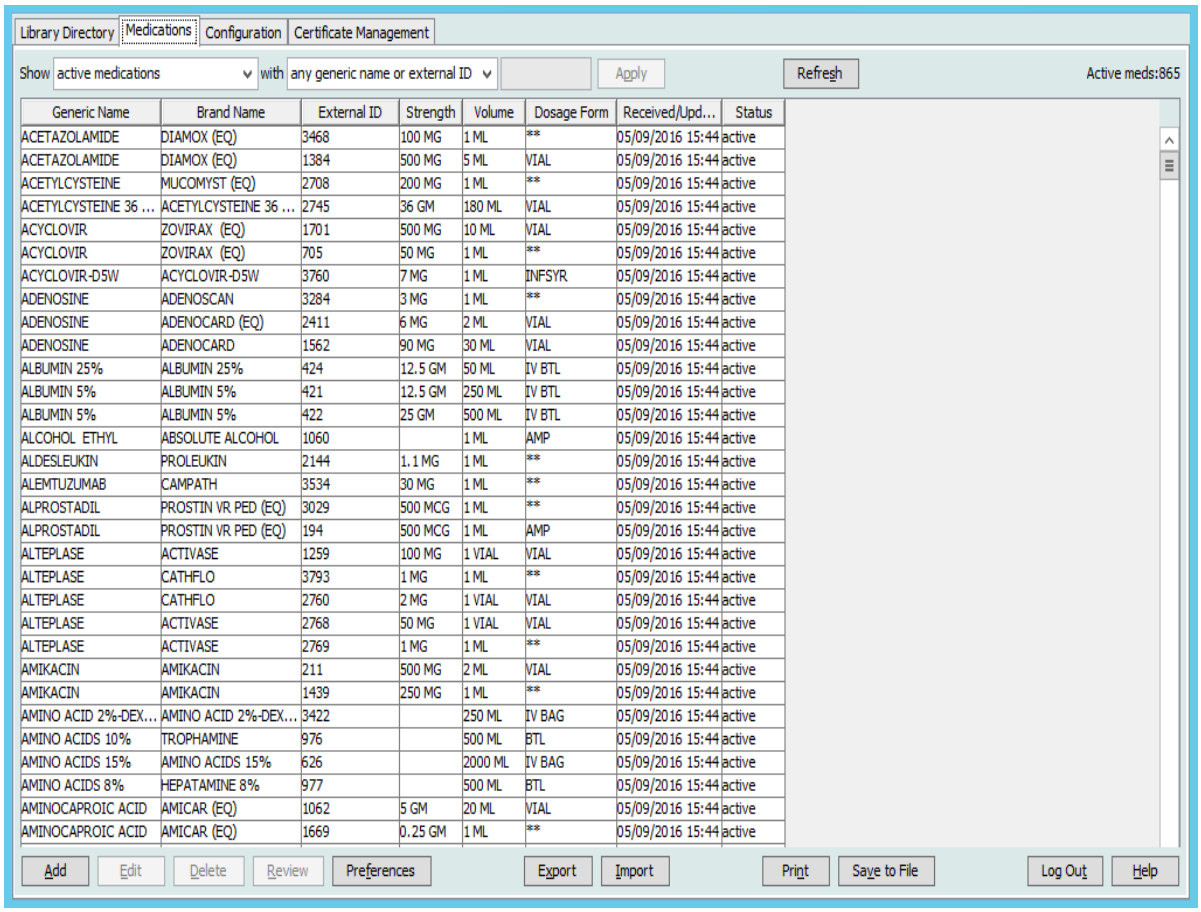
- Generic Name
- Brand Name
- External ID
- Strength
- Volume
- Dosage Form
- Received/Updated
- Status

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)

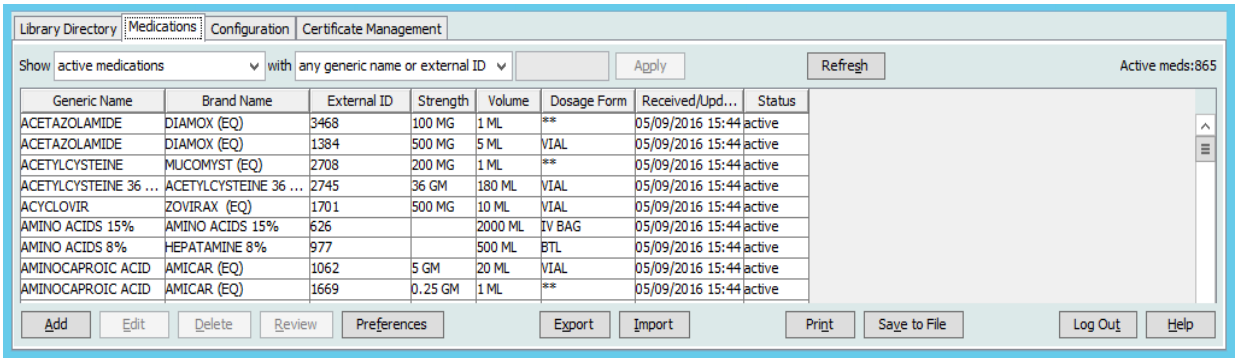


Generic Name	Brand Name	External ID	Strength	Volume	Dosage Form	Received/Upd...	Status
ACETAZOLAMIDE	DIAMOX (EQ)	3468	100 MG	1 ML	**	05/09/2016 15:44	active
ACETAZOLAMIDE	DIAMOX (EQ)	1384	500 MG	5 ML	VIAL	05/09/2016 15:44	active
ACETYLCYSTEINE	MUCOMYST (EQ)	2708	200 MG	1 ML	**	05/09/2016 15:44	active
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
ACYCLOVIR	ZOVIRAX (EQ)	705	50 MG	1 ML	**	05/09/2016 15:44	active
ACYCLOVIR-D5W	ACYCLOVIR-D5W	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

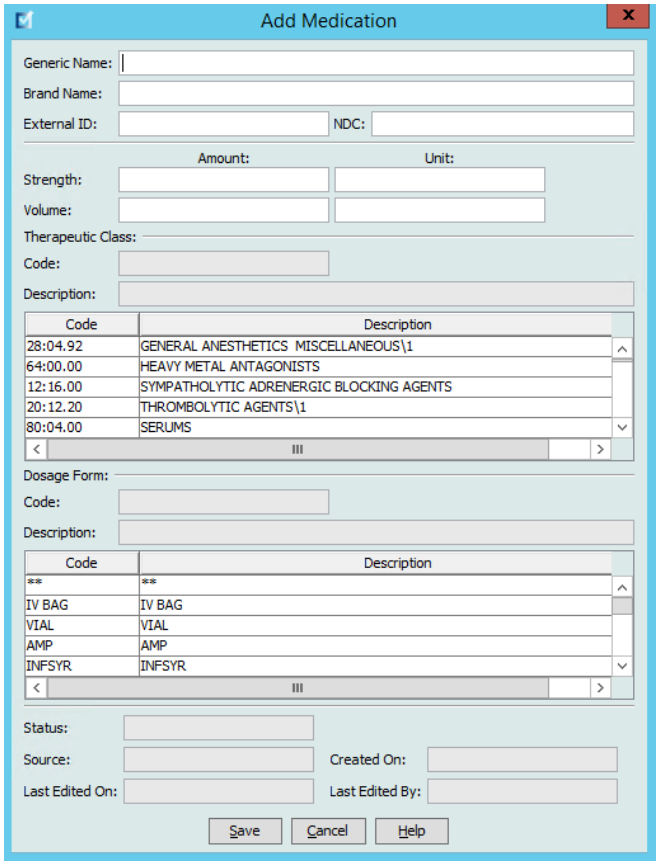
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

Add a Medication

1. Click the **Medications** tab.



2. Click **Add**.



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.

Note: 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 Center.

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.

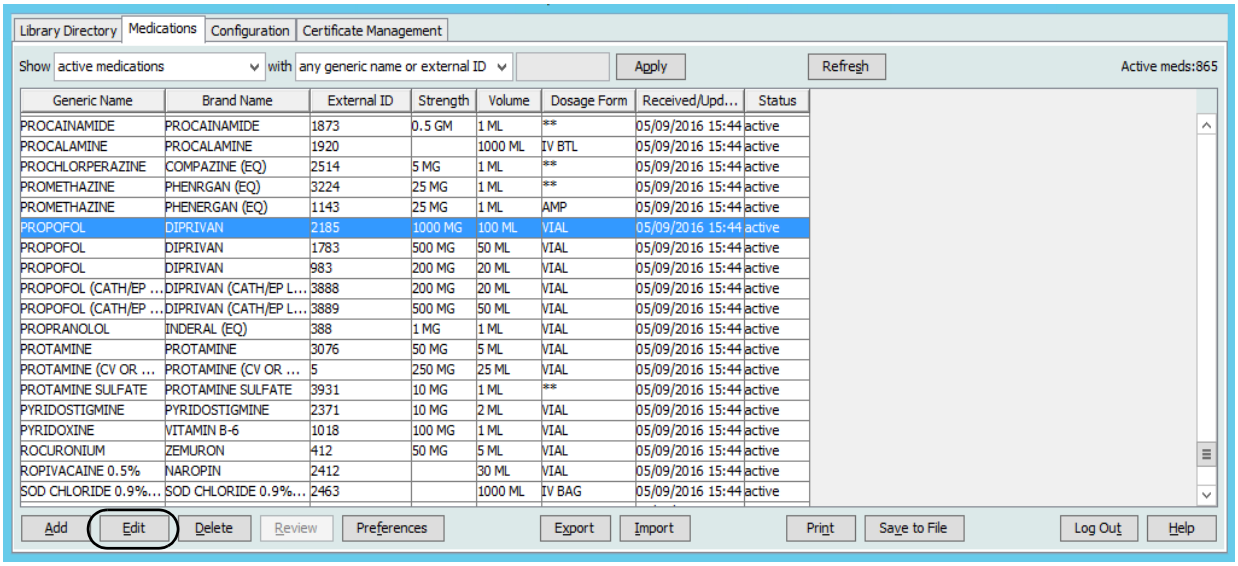
CAUTION: Generic names cannot contain the special characters greater than (>), less than (<), ampersand (&), double quotes (“), and single quotes (‘).

7. Click **Save**.

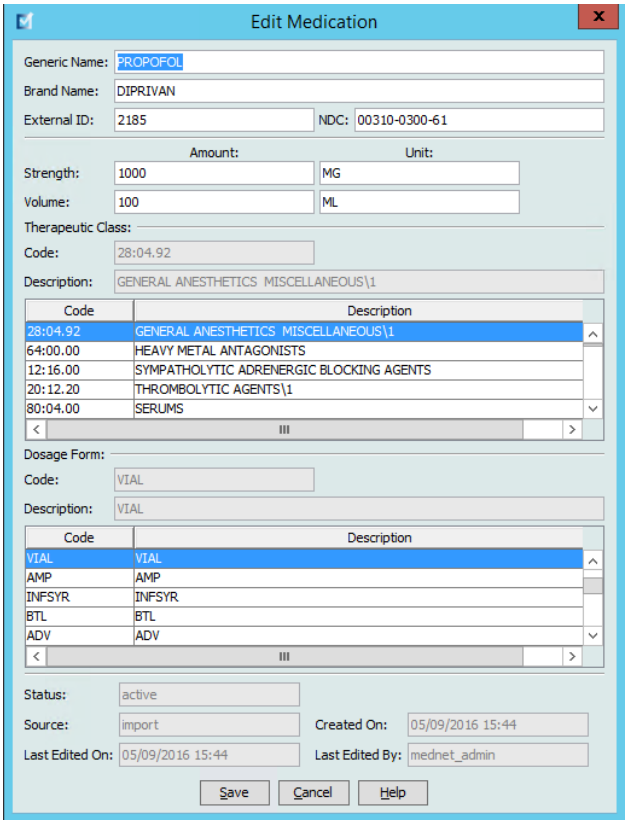
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

Edit a Medication

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



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



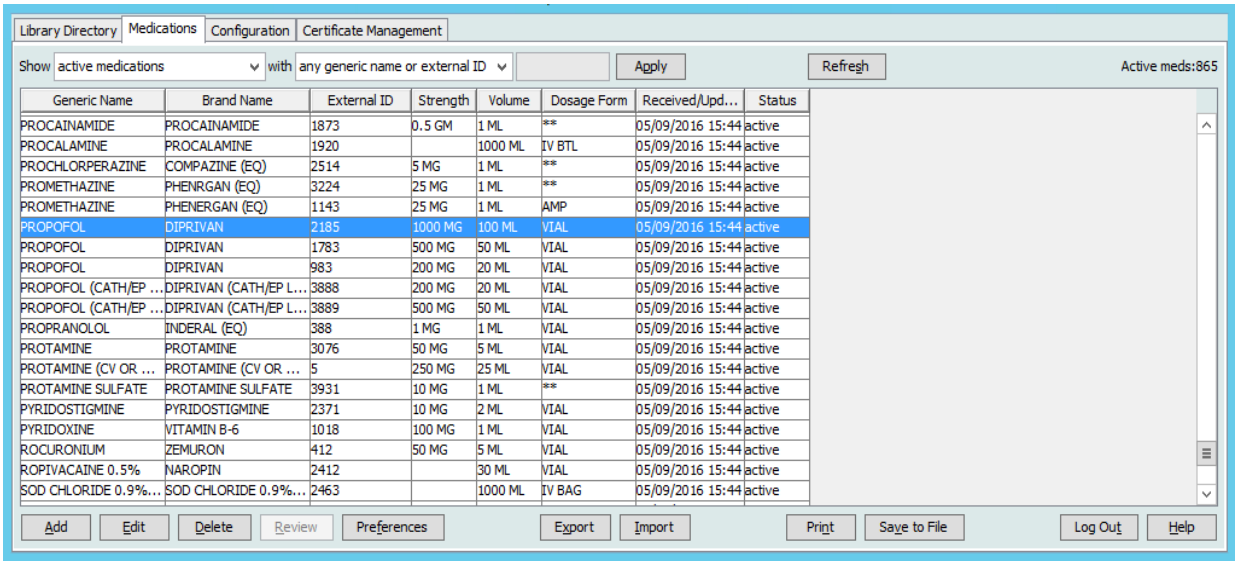
4. Click **Save**.

Note: 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 Center.

Delete a Medication

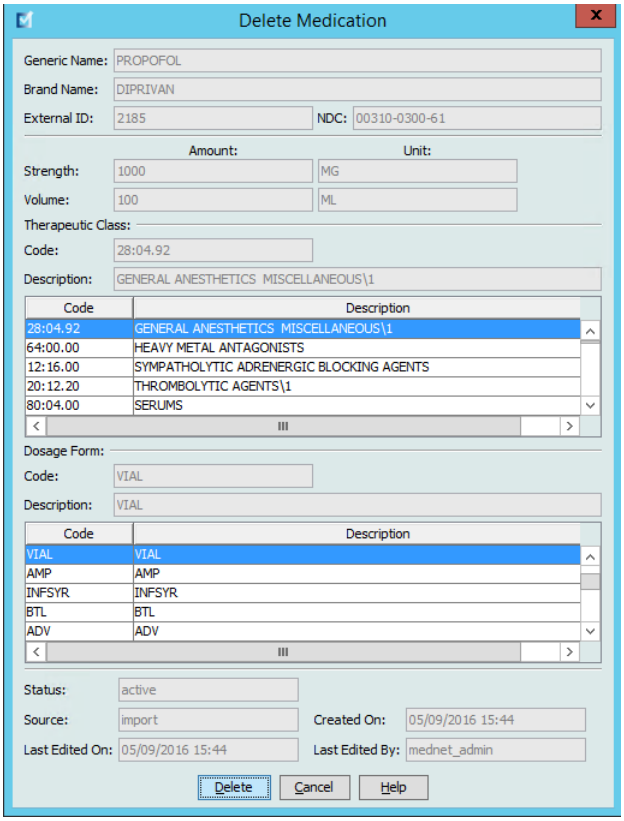
To Delete a Medication that is not used in a Drug Library:

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



2. Click **Delete**.

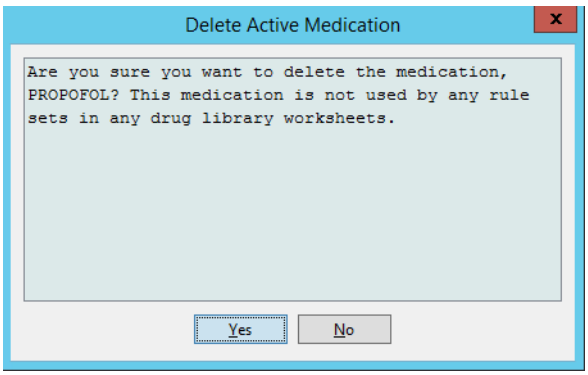
   The Delete Medication screen displays.



3. Click **Delete**.

Note: 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 Center.

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



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

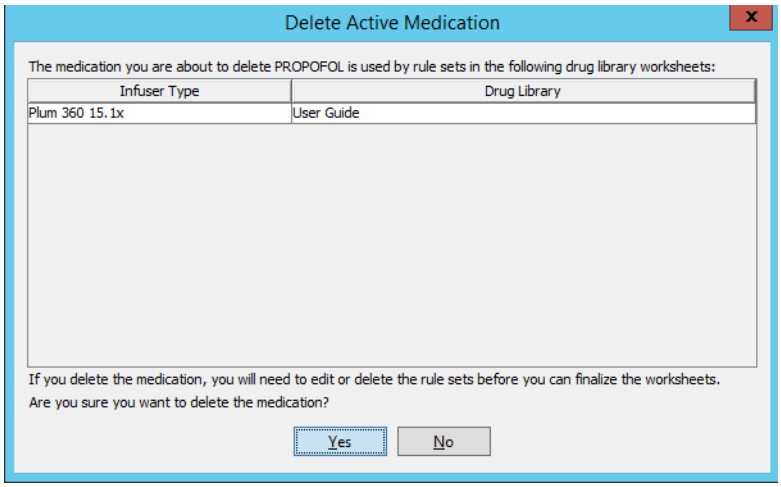
To Delete a Medication that is used in a Drug Library:

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.



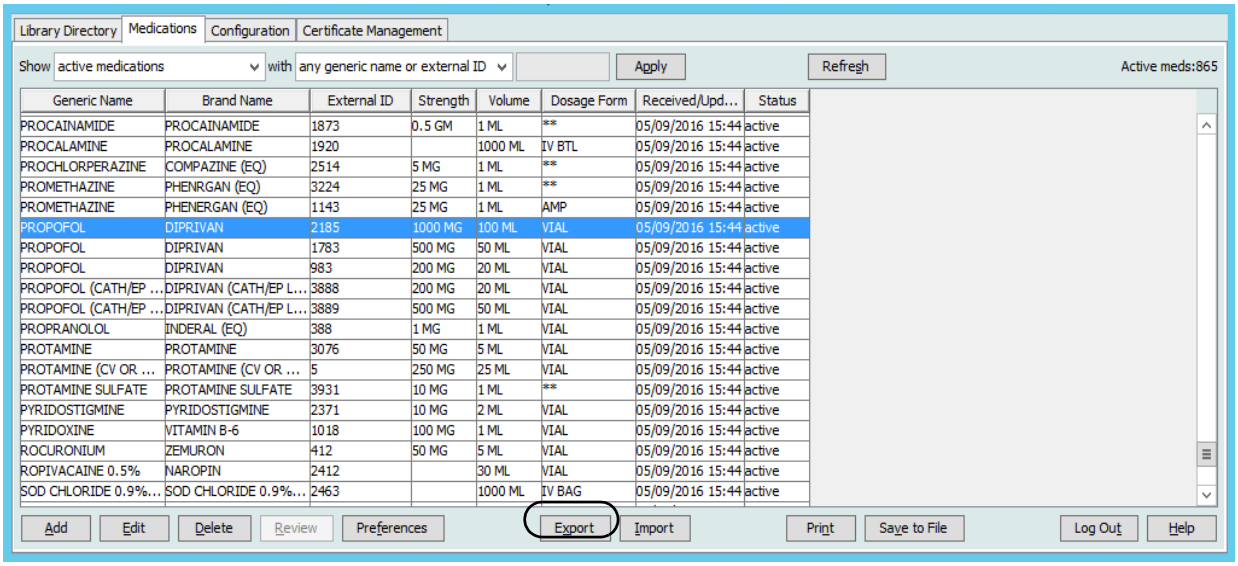
3. After reading the message, if you still wish to delete the medication, click **Yes**.

Note: 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 Center.

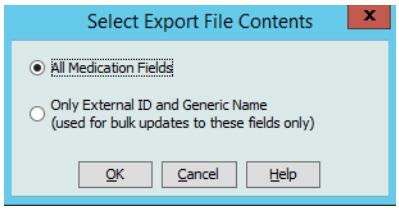
Export a Medication List

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.



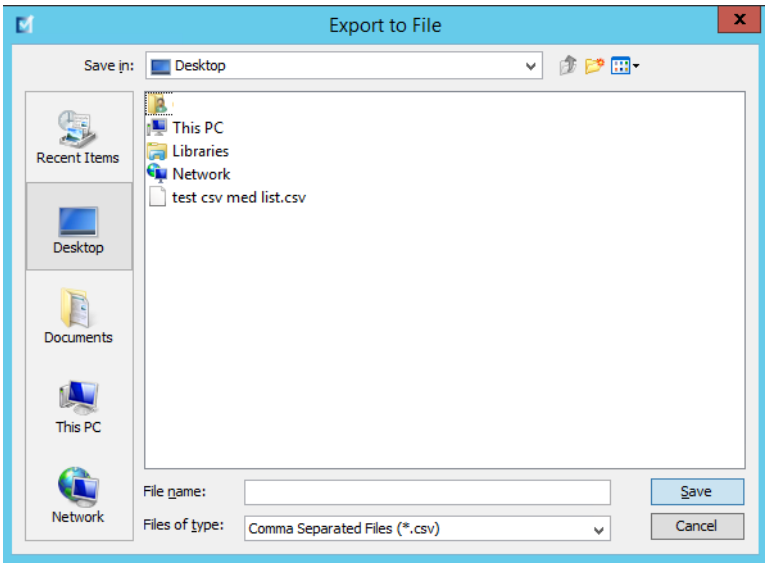
2. Select **All Medication Fields** or **Only External ID and Generic Names**.

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.

Note: 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 Center.

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



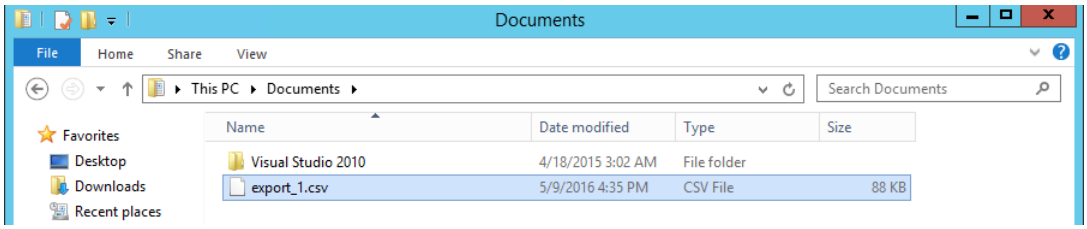
5. Enter a file name.

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**.

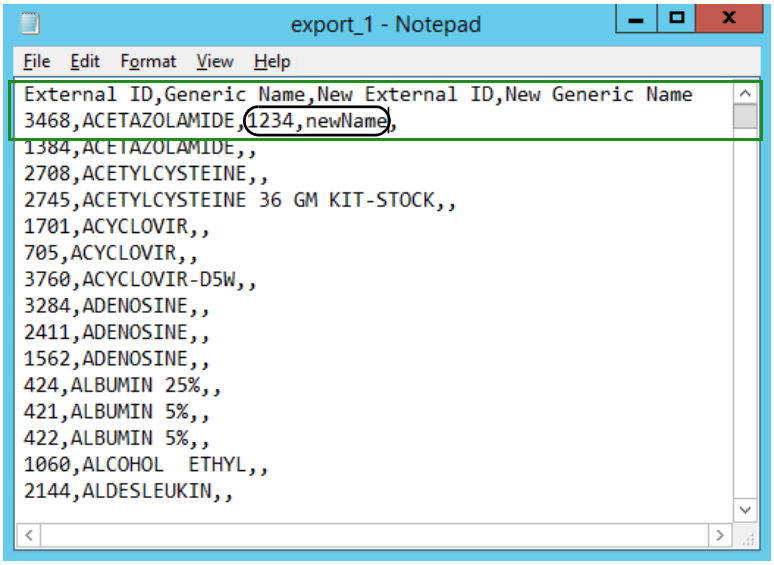
Editing an Exported External ID and Generic Name File

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



Note: 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 Center.

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.

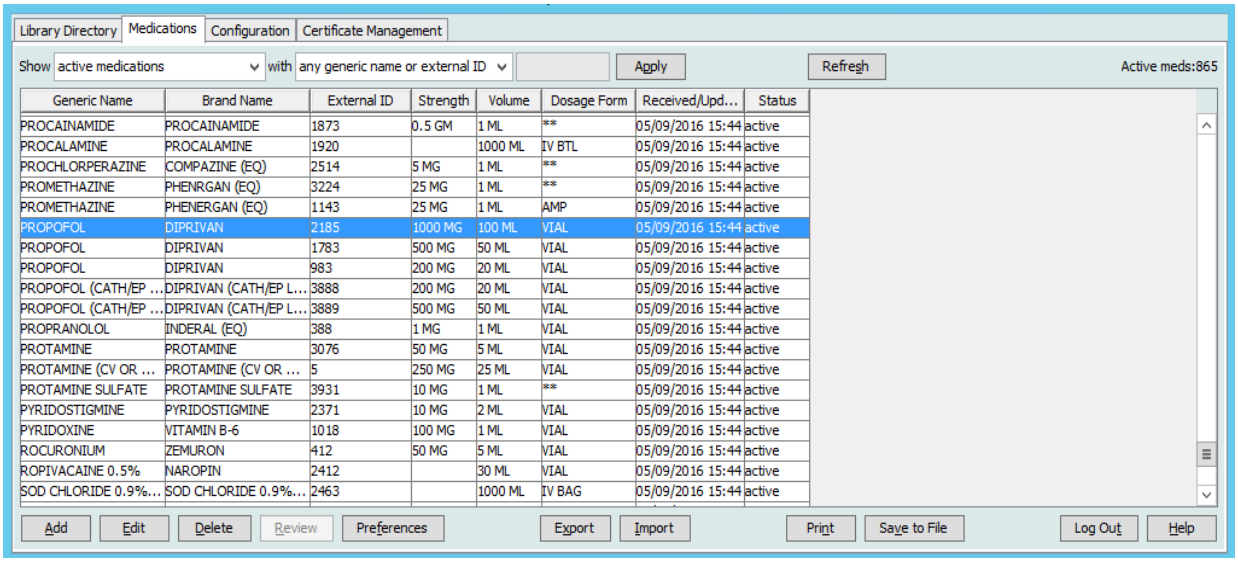
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

Medication List Report

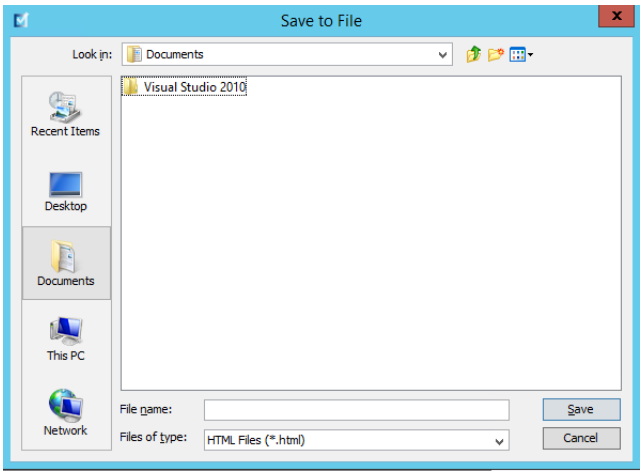
1. You can select to either:
   a. Save the report in .html format to a selected location by clicking **Save to File**,

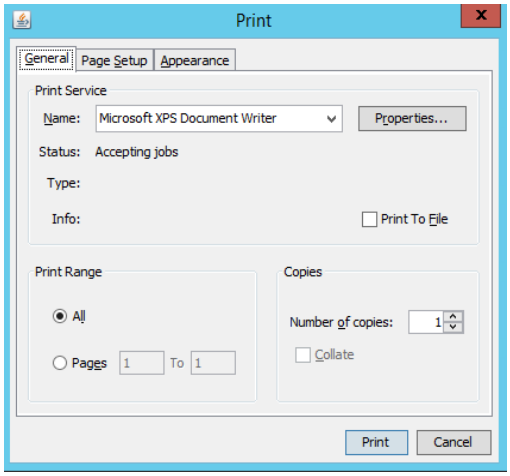
      or

   b. Print a report of the data currently being displayed in the Medication List view by clicking the **Print** button.



2. The appropriate window displays:





   Make your selections.

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

Note: 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 Center.

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 63.) 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

Note: 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 Center.

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[1]	The name you entered when you created the library
Library Status	Categorized as one of the following: • Worksheet • Active • Archive
Date Modified	The date and time the drug library was last modified
Date Finalized[2]	The date and time the drug library was finalized
Infuser Library Version[3]	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

[1] The library name cannot be edited after the library is created.
[2] This field is blank if the drug library is a Worksheet.
[3] 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.

Note: 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 Center.

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

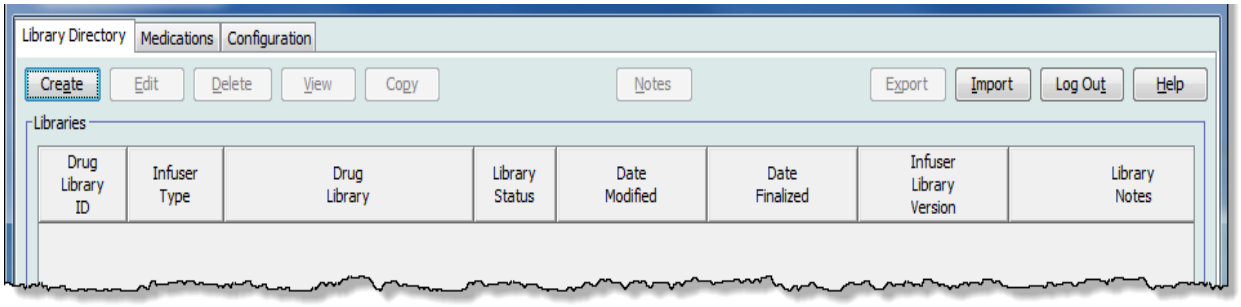
To navigate to the Library Directory list view, do the following:

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.

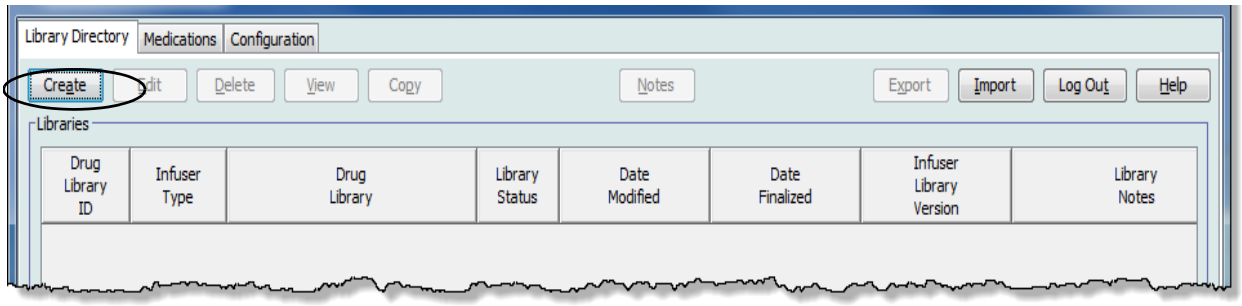


Note: You will not see any entries in the list until you create a Worksheet or import a library.

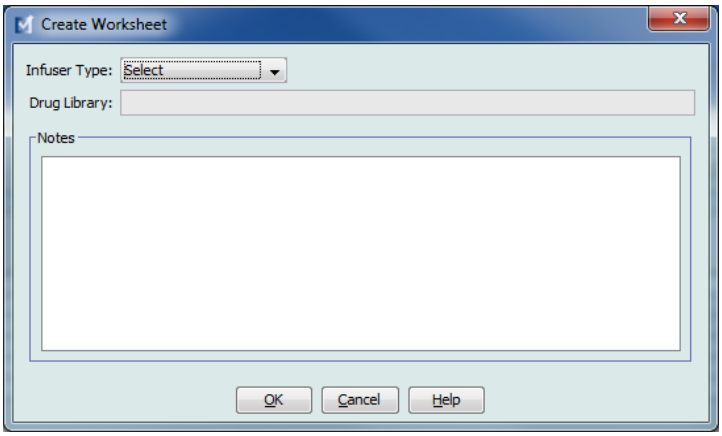
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.

Note: 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 Center.

Edit a Worksheet

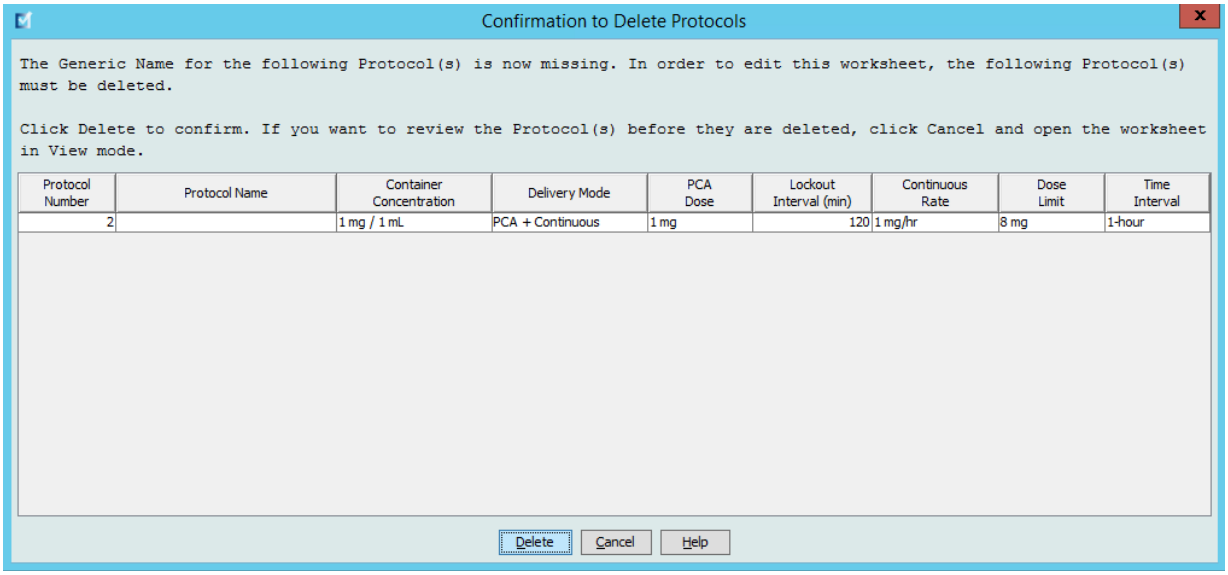
1. On the Library Directory view, highlight a Worksheet.
2. Click **Edit**.
3. Make desired changes.
4. Click **Close**.

   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 121
Chapter 10: LifeCare PCA Medication Entries, on page 183
Chapter 12: SapphirePlus Medication Entries, on page 215

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

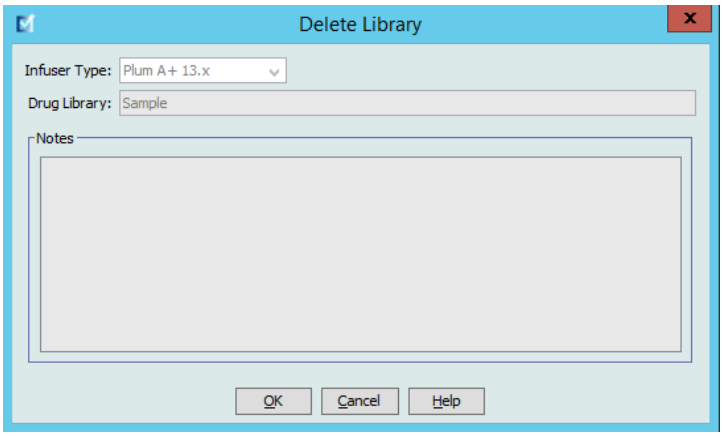
You may delete a Worksheet or Archived drug library from the Library Directory. When you delete a library, it is permanently removed from the system.

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.

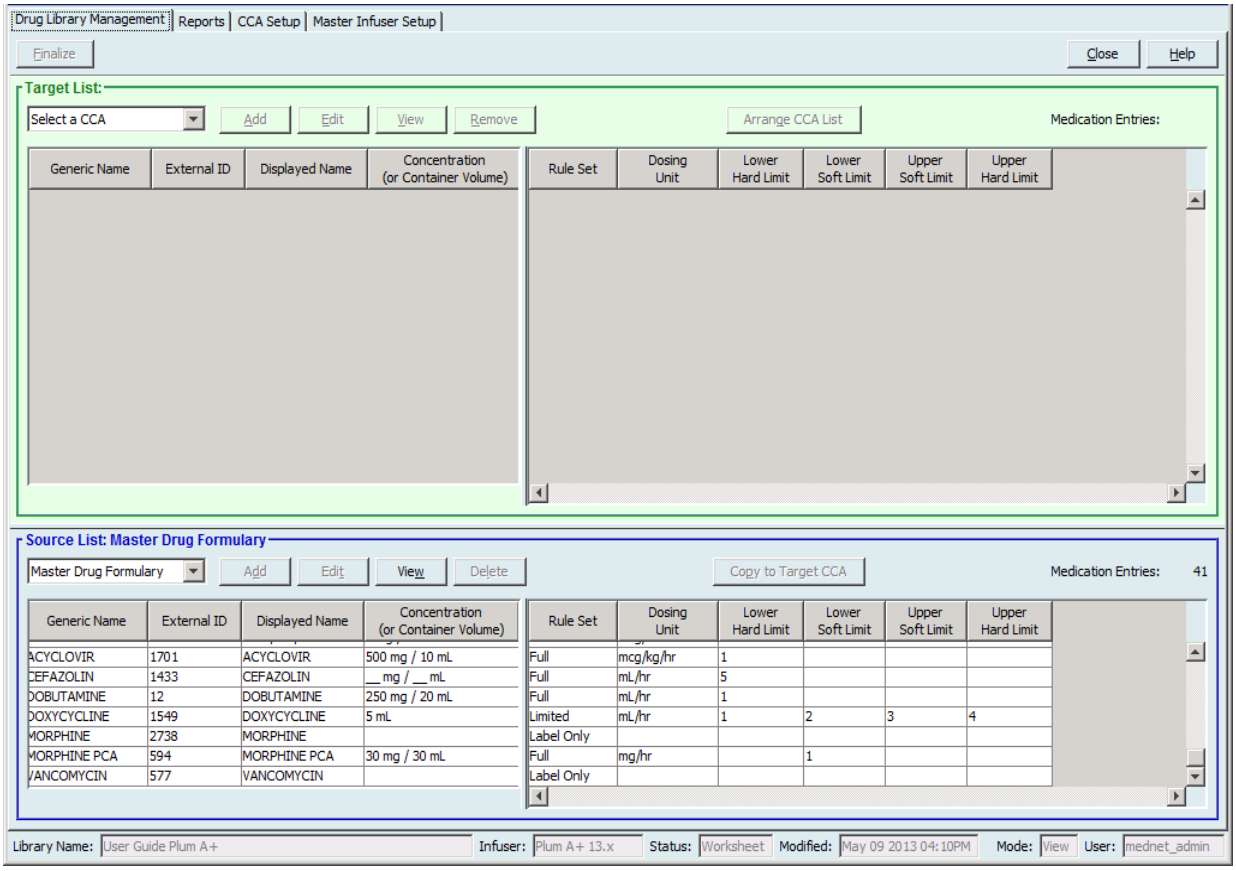
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

View a Drug Library

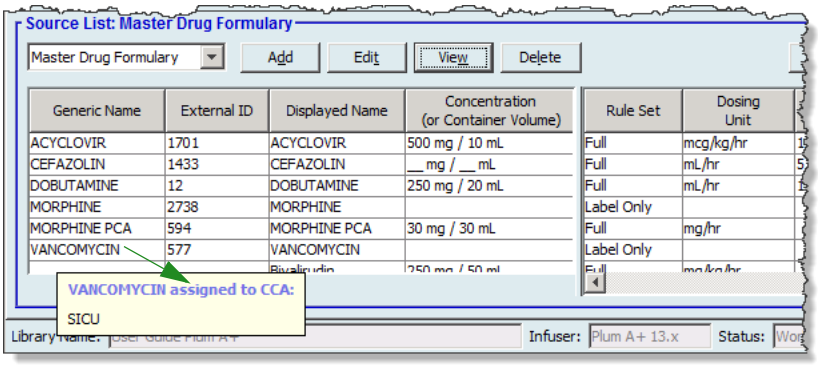
1. On the Library Directory view, highlight a drug library.
2. Click **View**.

   The Drug Library Management view appears.

Note: You cannot make changes when viewing a library.



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.*



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

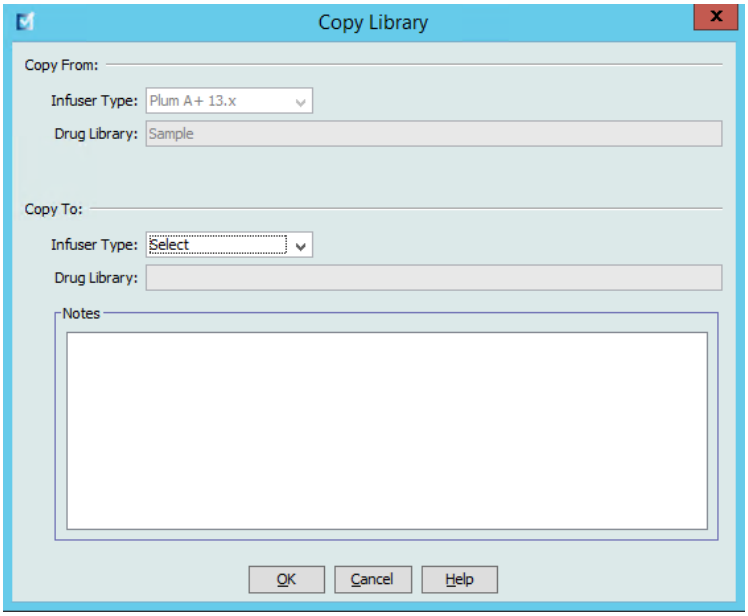
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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**.

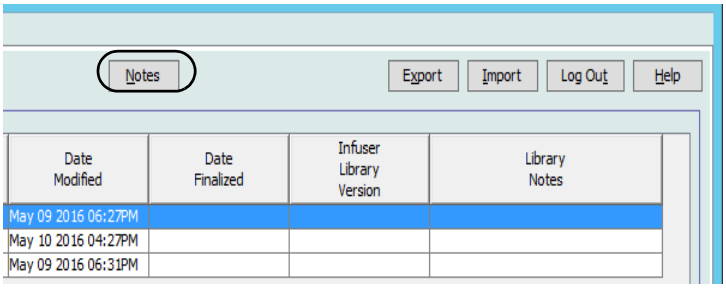
   Your drug library is copied. The new Worksheet appears on the Library Directory view.

Note: Copying is allowed only between libraries for the same infuser type.

Note: 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 Center.

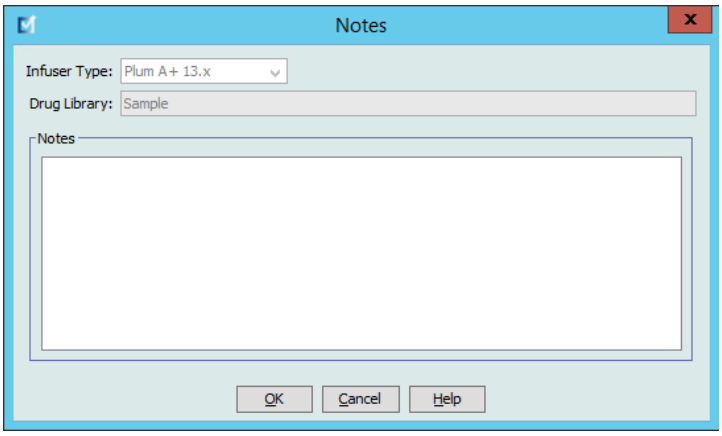
Add or Edit Notes to a Worksheet.

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



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.

Note: 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 Center.

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.

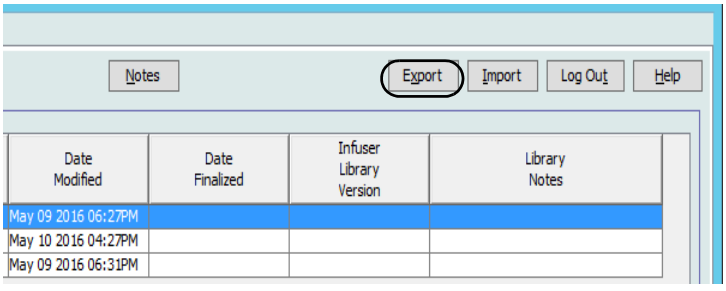
When exporting a Worksheet, Archived library, or Active library, only medication entries that have been assigned to CCAs will be exported; medication entries that are listed only in the Master Drug Formulary are not exported.

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.

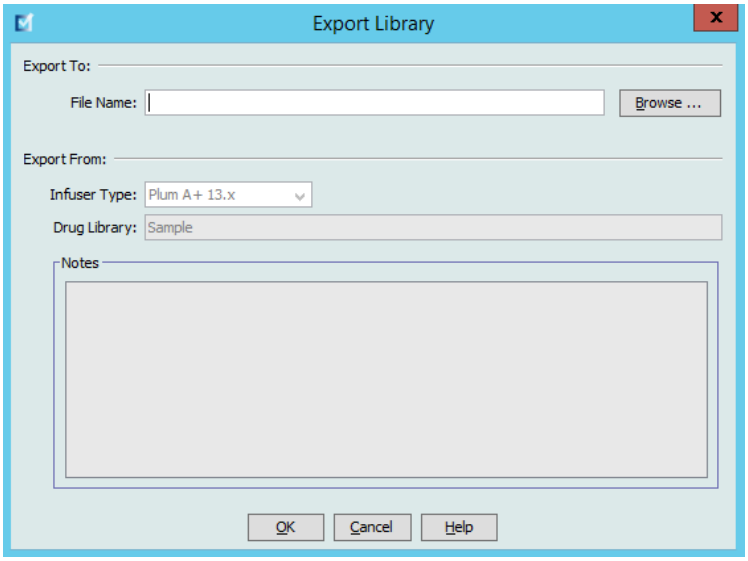
You may export a drug library to an external location on your network or hard drive.

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

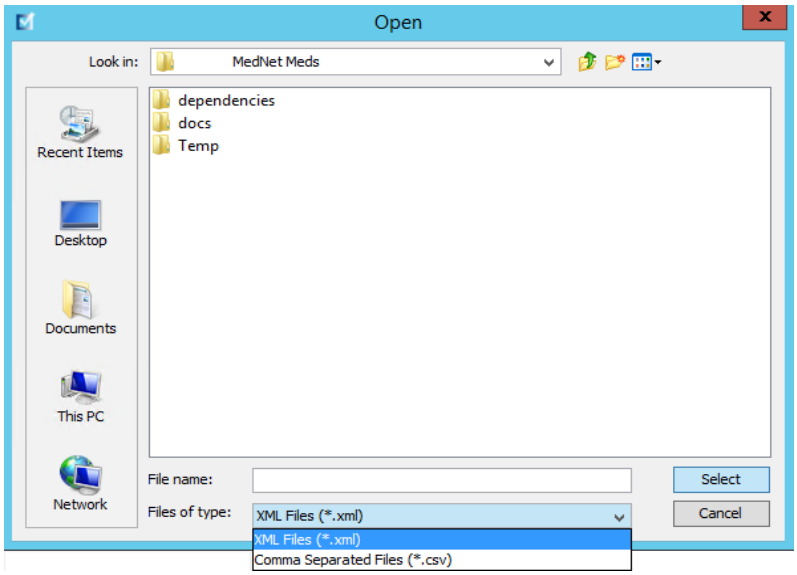


Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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**.

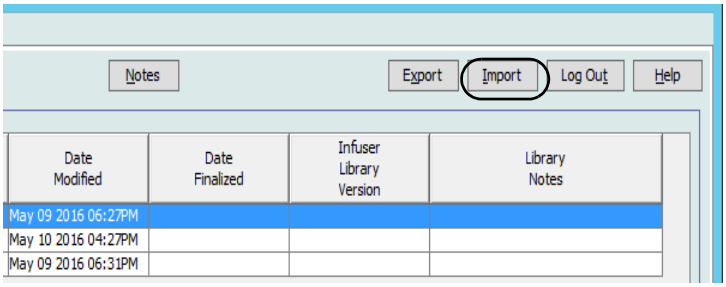
   The Export Library screen closes. The drug library is exported to the desired location.

Note: 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 Center.

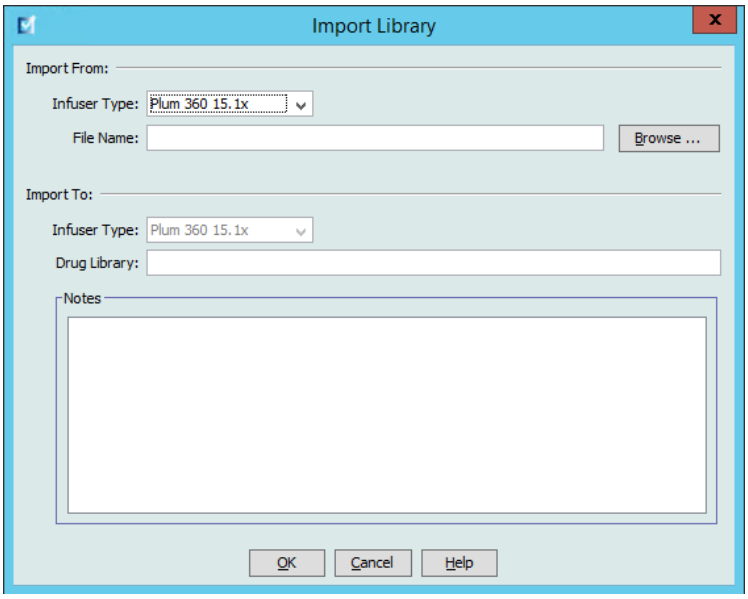
Import a Drug Library

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**.



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**.

Note: 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 Center.

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.

Note: 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 Center.

Notes:

Note: 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 Center.

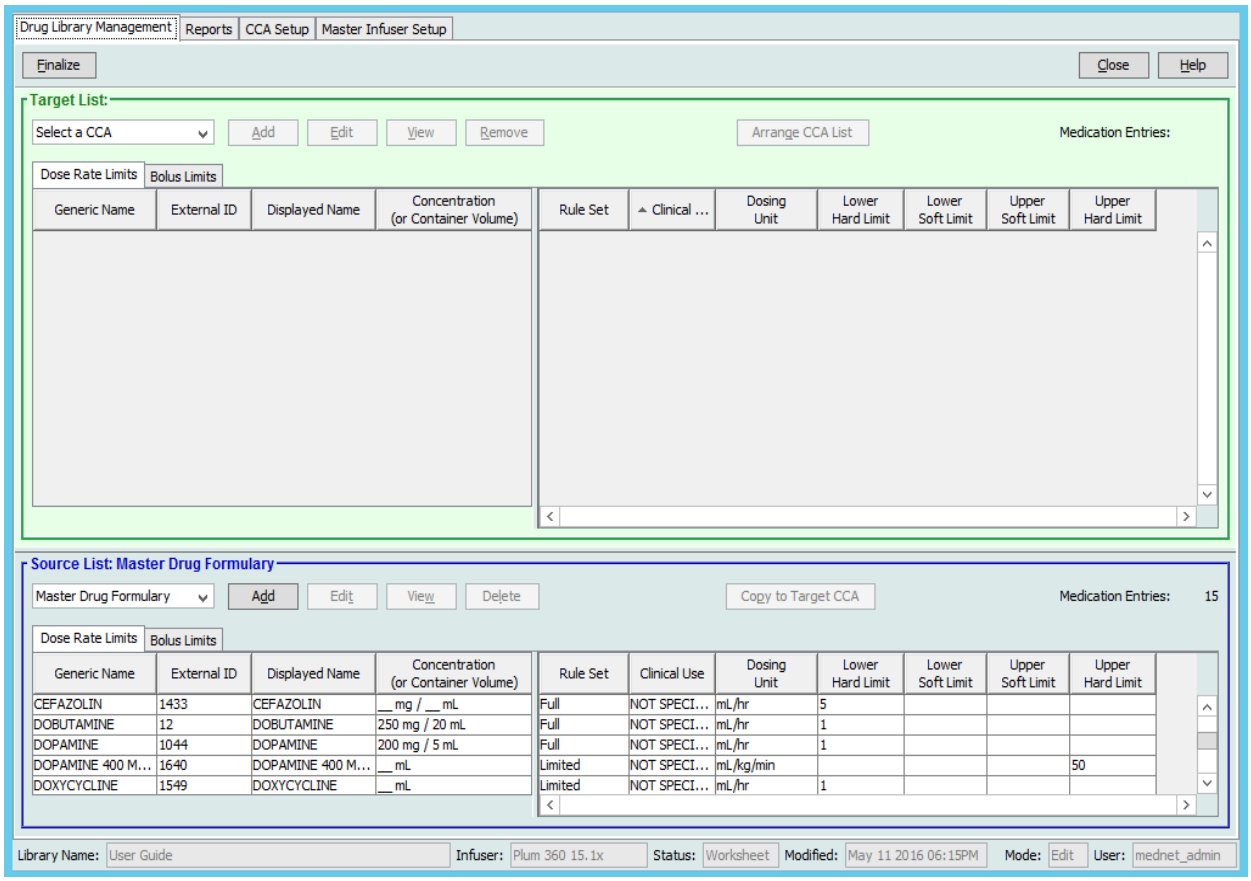
Chapter 6: Drug Library Management

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.



Note: 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 Center.

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 95

- Create the medication entries.

  See: **Chapter 9: Plum A+, and Plum 360 Medication Entries**, on page 121

  See: **Chapter 10: LifeCare PCA Medication Entries**, on page 183

  See: **Chapter 12: SapphirePlus Medication Entries**, on page 215

- Arrange the medication list in the desired order.

  See: **Changing the Display Order of Medication Entries**, on page 52

- Create protocols for the LifeCare PCA infuser - Optional.

  See: **Chapter 11: Setting Up LifeCare PCA Protocols**, on page 203

- Define the Master Infuser setting.

  See: **Chapter 13: Master Infuser Setup**, on page 247

Note: 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 Center.

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

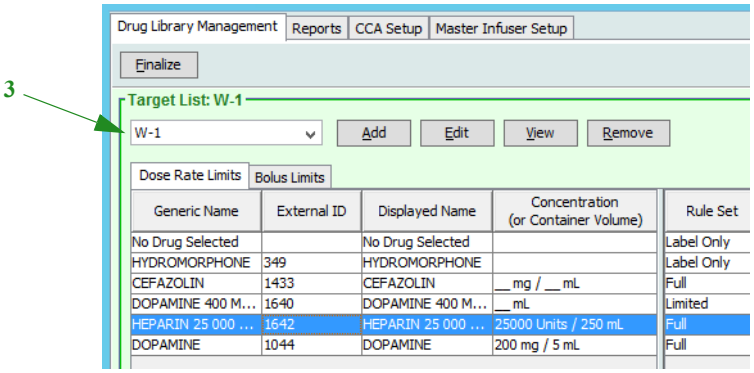
WARNING: In the case of an auto-program, if the ICU Medical MedNet™ Software is unable to locate a matching rule set, the order will be sent to the infuser under “No Drug Selected” (infuser- and CCA-dependent) and the order data will be transmitted to the infuser. No Rule Set Limits will be available 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.

Note: 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 Center.

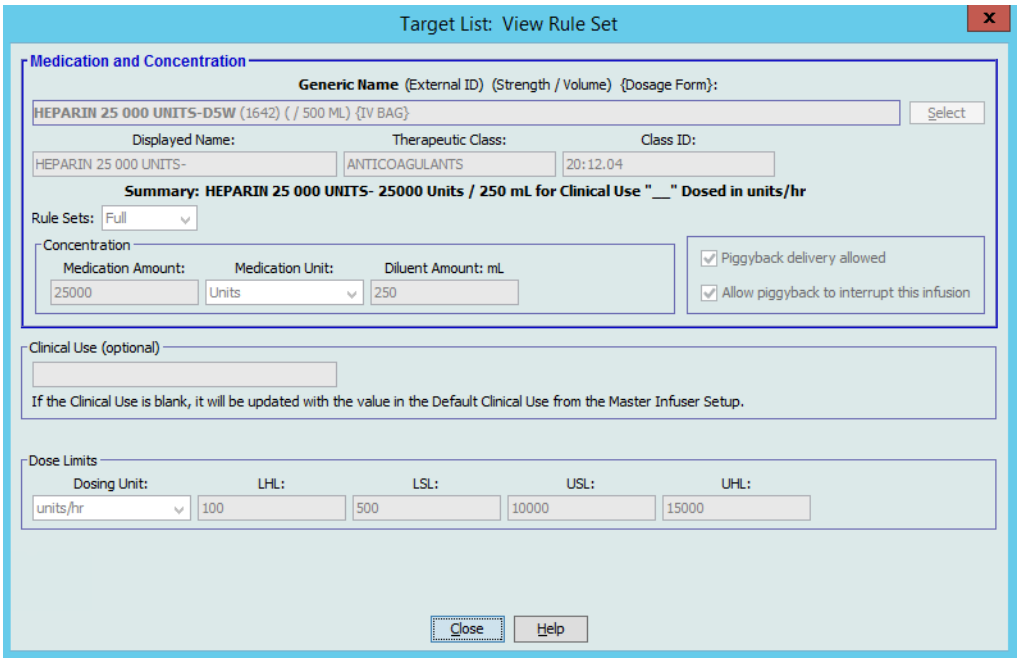
Viewing Medication Entries in a CCA

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.



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

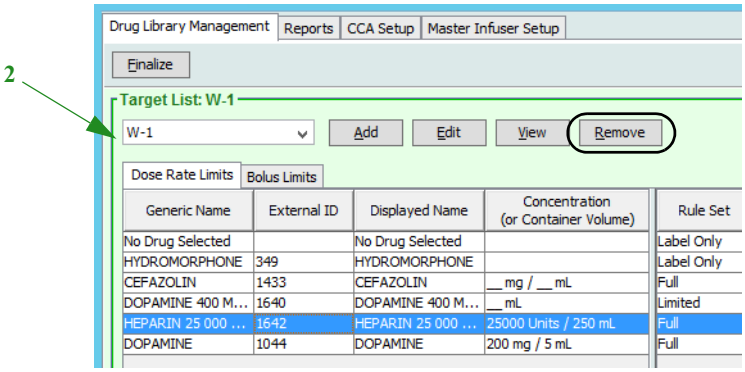


Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

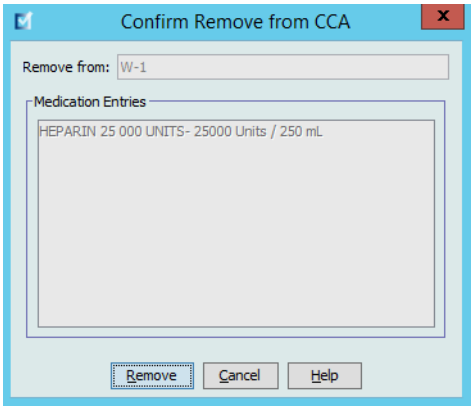
Removing Medication Entries from a CCA

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.

Note: 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 Center.

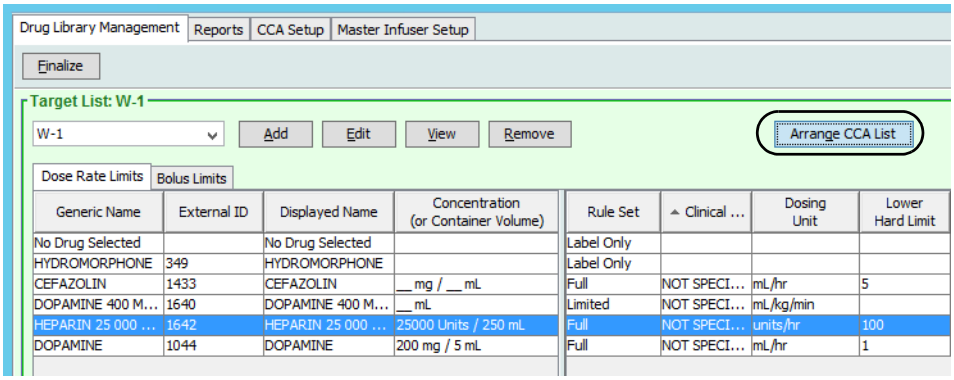
Changing the Display Order of Medication Entries

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:

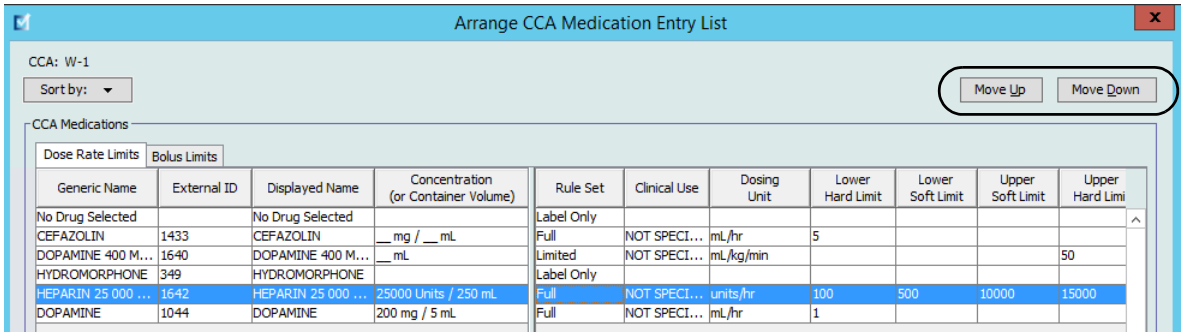
1. From the Target List, select a CCA.
2. Click **Arrange CCA List**.



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.



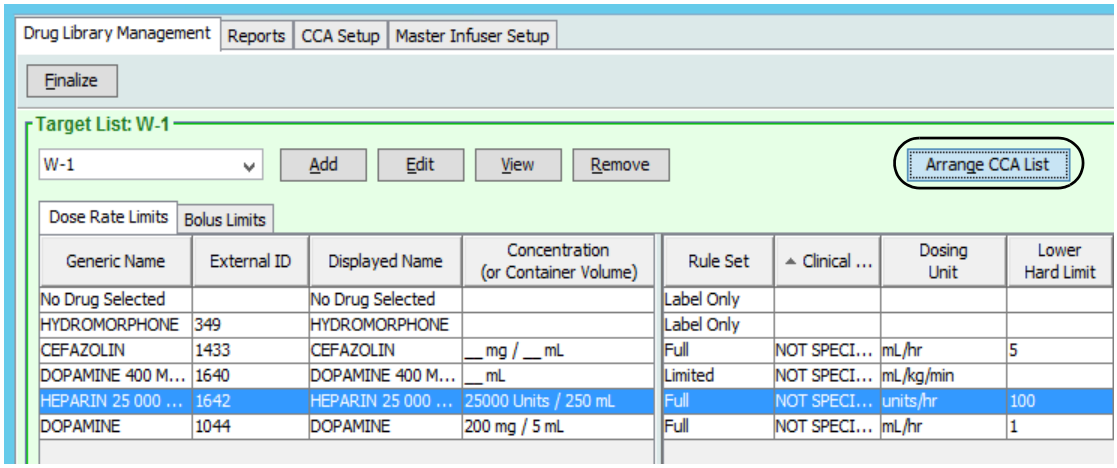
5. Repeat for all medication entries as needed.
6. Click **Save**.

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

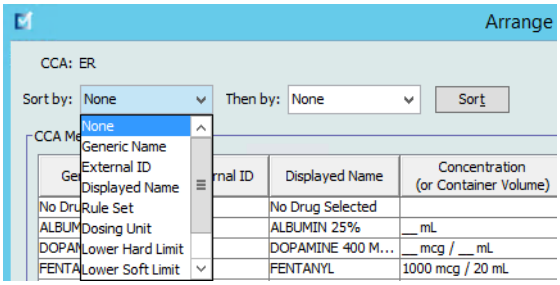
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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**.



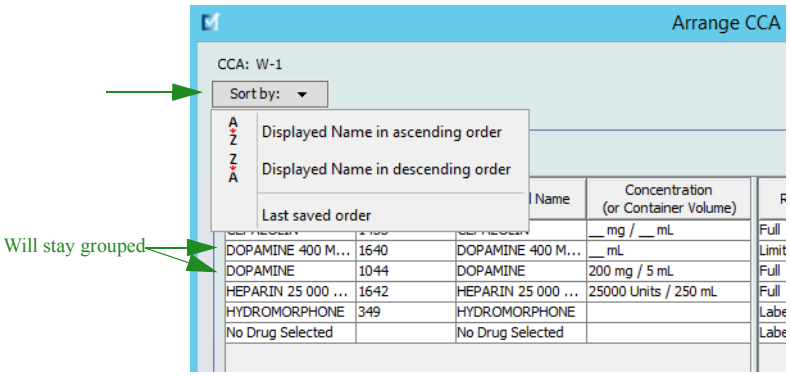
4. On the pop-up that appears, from the **Sort By** list, select the primary sorting criteria from the list. The selection will vary according to the infuser.



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

Note: 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 Center.

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.)

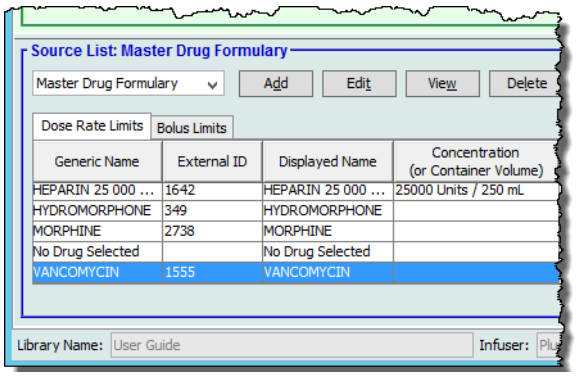


Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

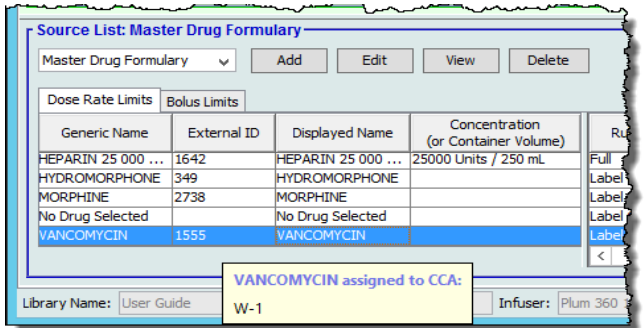
Viewing Medication Entries in the Master Drug Formulary

To view a medication entry in the Master Drug Formulary:

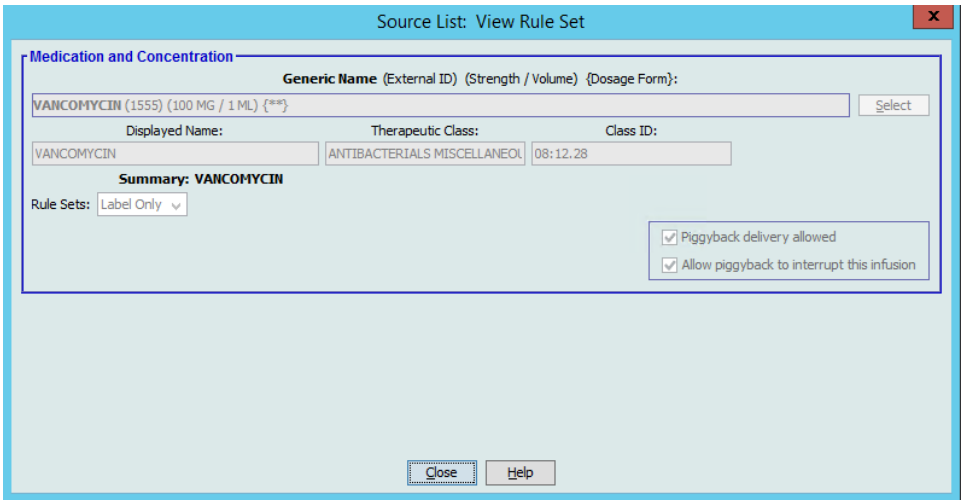
1. Select **Master Drug Formulary** as the source location.



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**.



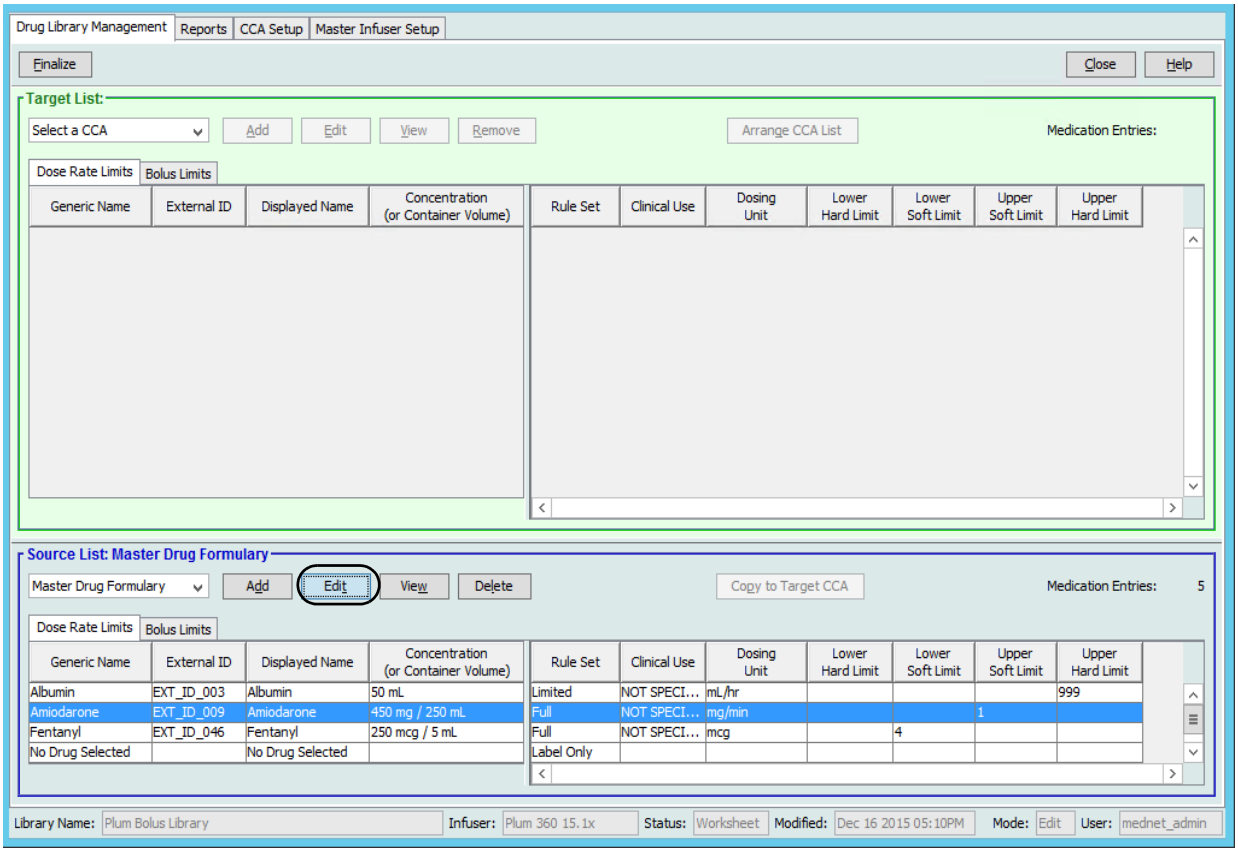
4. When you are finished viewing, click **Close**.

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

Note: 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 Center.

Keeping or Clearing Rule Sets for Medication Entries

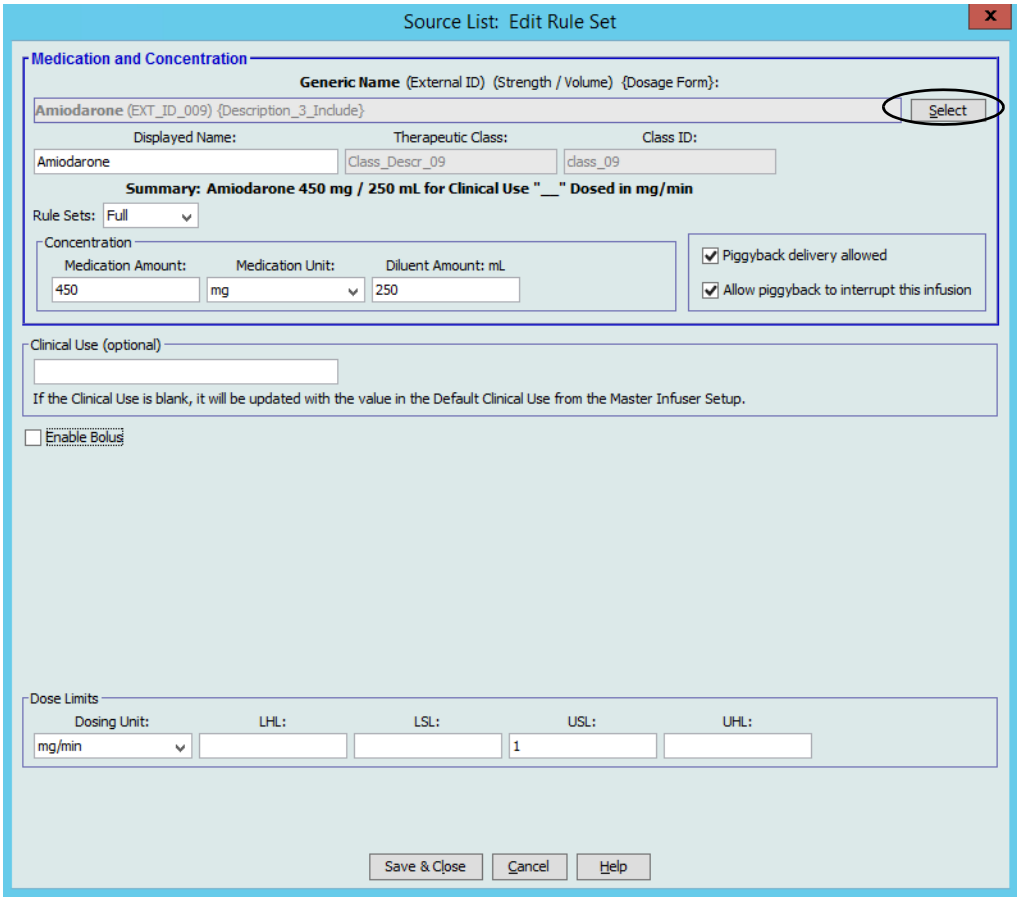
1. Highlight a medication entry with existing rule sets, in either the Source List Master Drug Formulary or Target List.
2. Click **Edit**.



The selected medication entry displays with its rule sets.

Note: 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 Center.

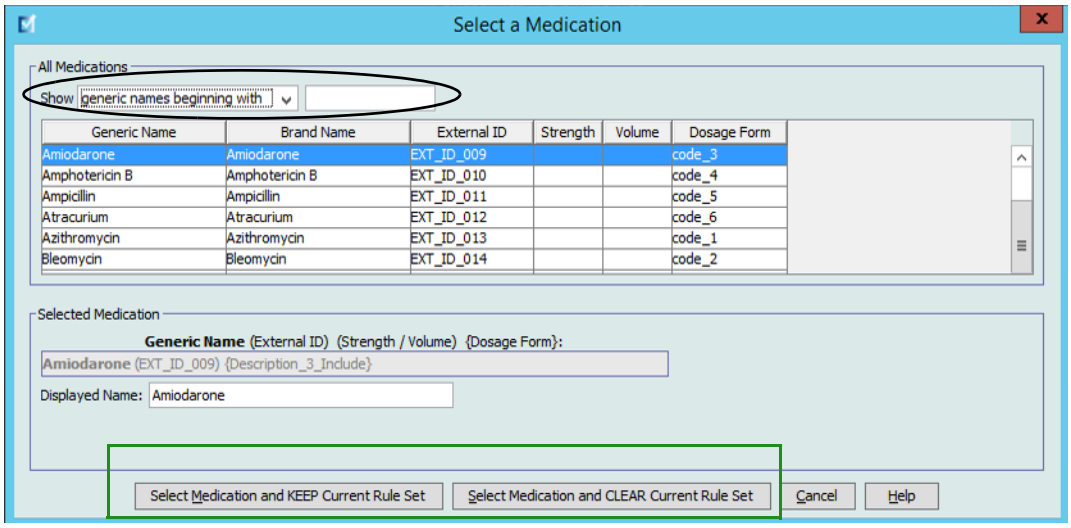
3. Click **Select**.



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.

Note: 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 Center.

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.

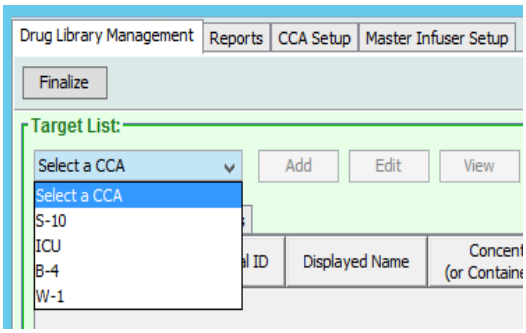
   - Click **Select Medication and KEEP Current Rule Set**

   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.

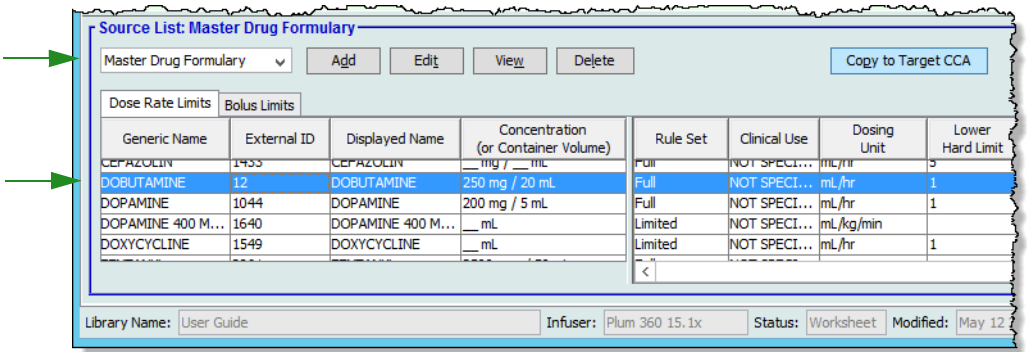
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

Copying Medication Entries to one or more CCAs

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



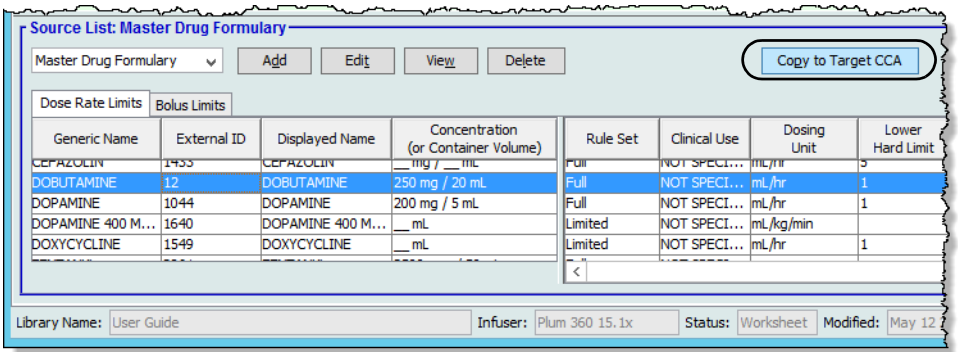
2. Select the Master Drug Formulary or Source CCA from which you want to copy a medication entry (either the Master Drug Formulary or another CCA).



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

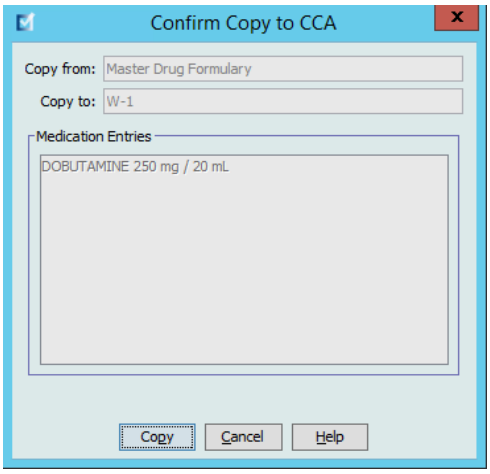
Helpful Hint: You may select multiple entries by clicking the first medication entry you want to copy, and holding the shift key while clicking the last medication entry you want to copy. Add or remove medications from the group you have selected by using the Control key.

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



Note: 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 Center.

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).

Note: Duplicate or conflicting medication entries cannot be copied.

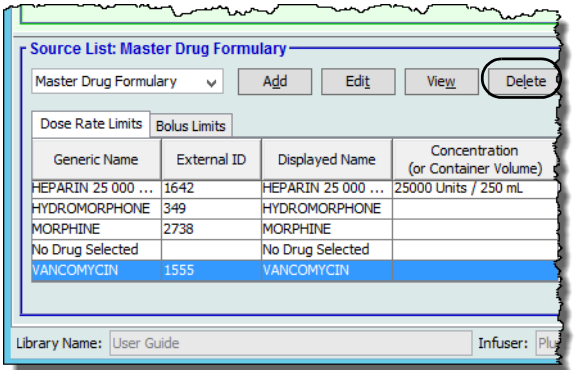
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

Deleting Medication Entries from the Master Drug Formulary

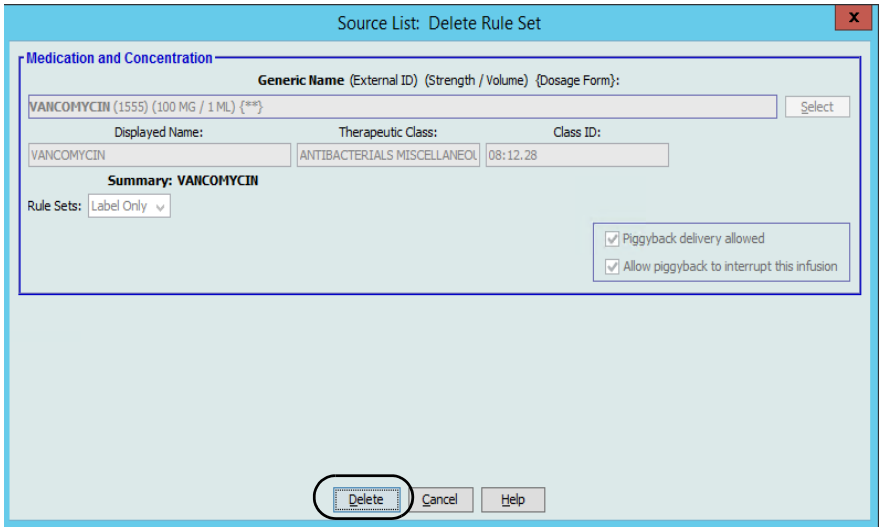
Note: Deleted medication entries are permanently removed from the Master Drug Formulary and from all CCAs in which they appear.

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.

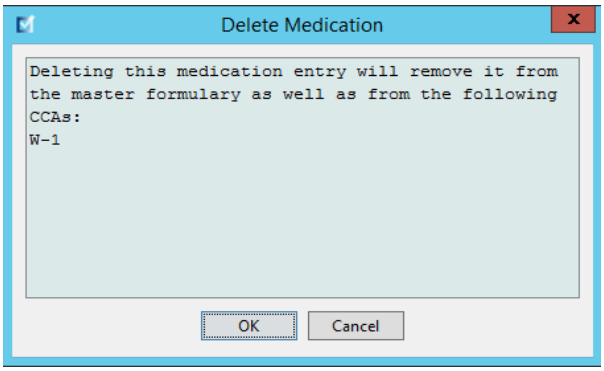


2. From the Source List, select the medication entry you want to delete.
3. Click **Delete**.
4. From the Source List: Delete Rule Set window, click **Delete**.



Note: 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 Center.

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.

Note: 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 Center.

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.

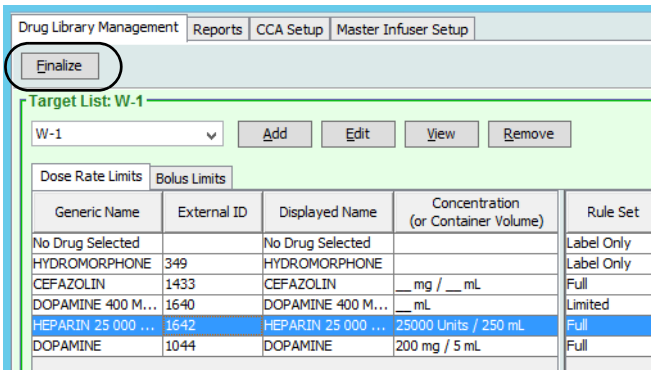
Only users with the appropriate login privileges are able to finalize a Worksheet.

Certificates are required in order to finalize drug libraries.

To finalize a Worksheet:

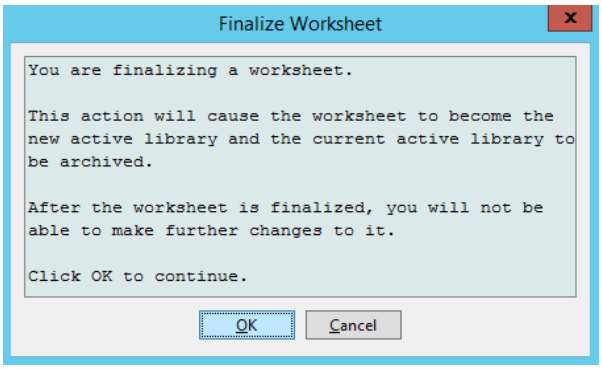
Note: The Generic Name and External ID of a medication entry must be present in the Master Drug Formulary for the Worksheet to be finalized.

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.



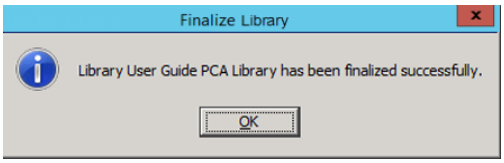
3. A progress bar appears briefly.

Note: 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 Center.

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.

Note: 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 Center.

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.

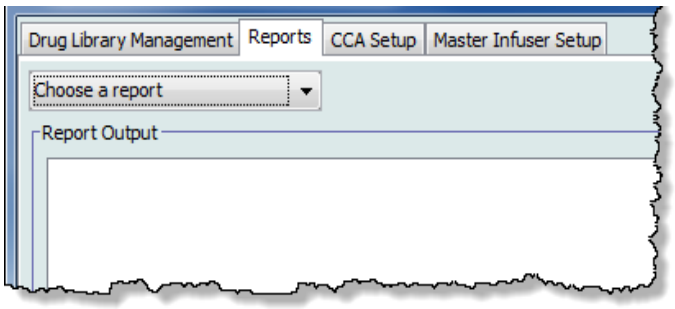
The reports will also reflect the date format and distal pressure specific to the configuration you selected.

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

Note: 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 Center.

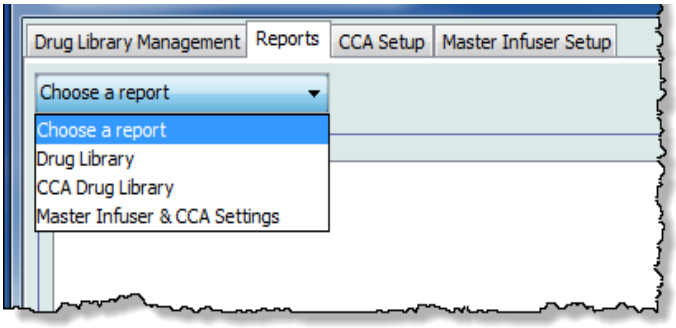
To display the Reports page:

1. Open a Worksheet or library. (For instructions on opening a Worksheet or library, see **Chapter 5: The Library Directory on page 33**)
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.



Note: 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 Center.

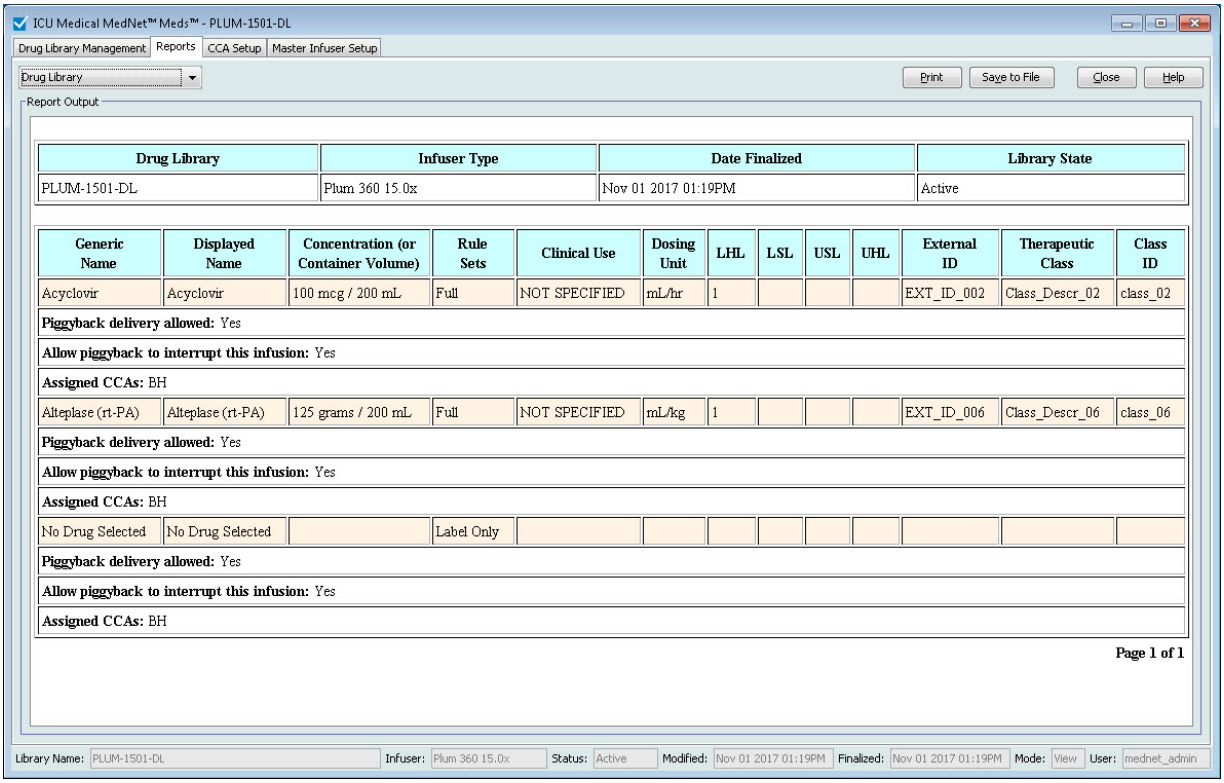
Plum A+ and Plum 360 Drug Library Reports

The following reports are available:

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

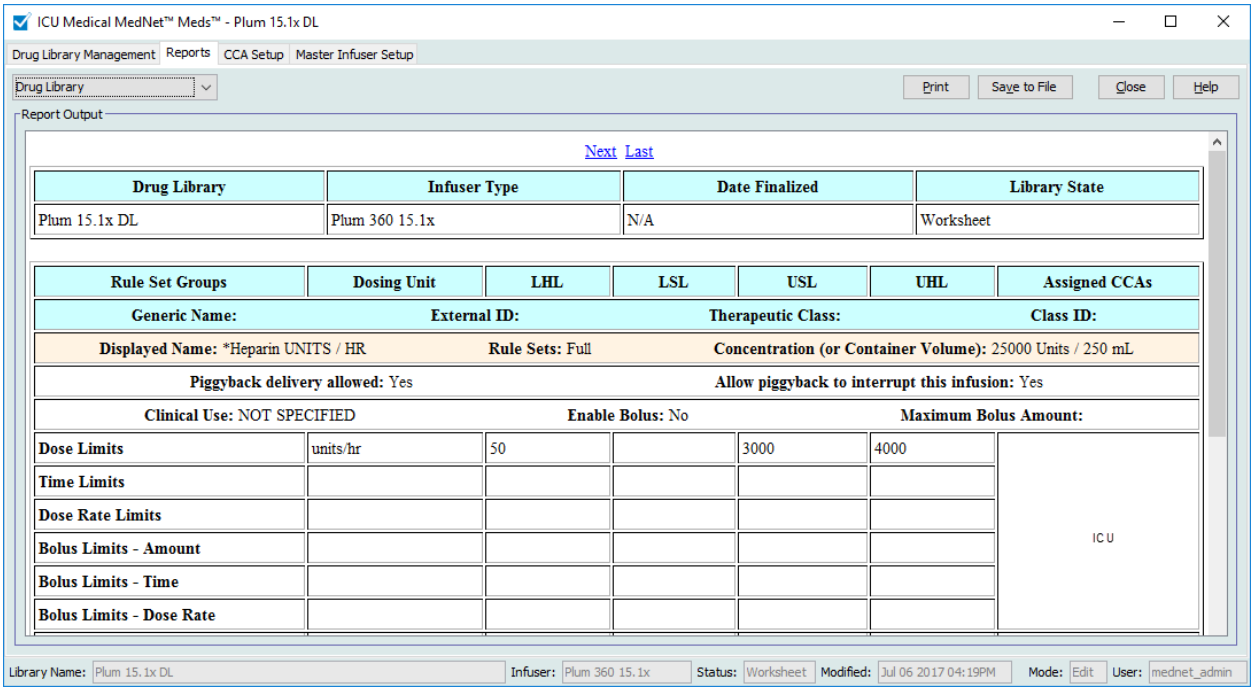
Plum 360 Drug Library

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



Note: 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 Center.

Plum 360 15.1 Drug Library



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)[1]	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

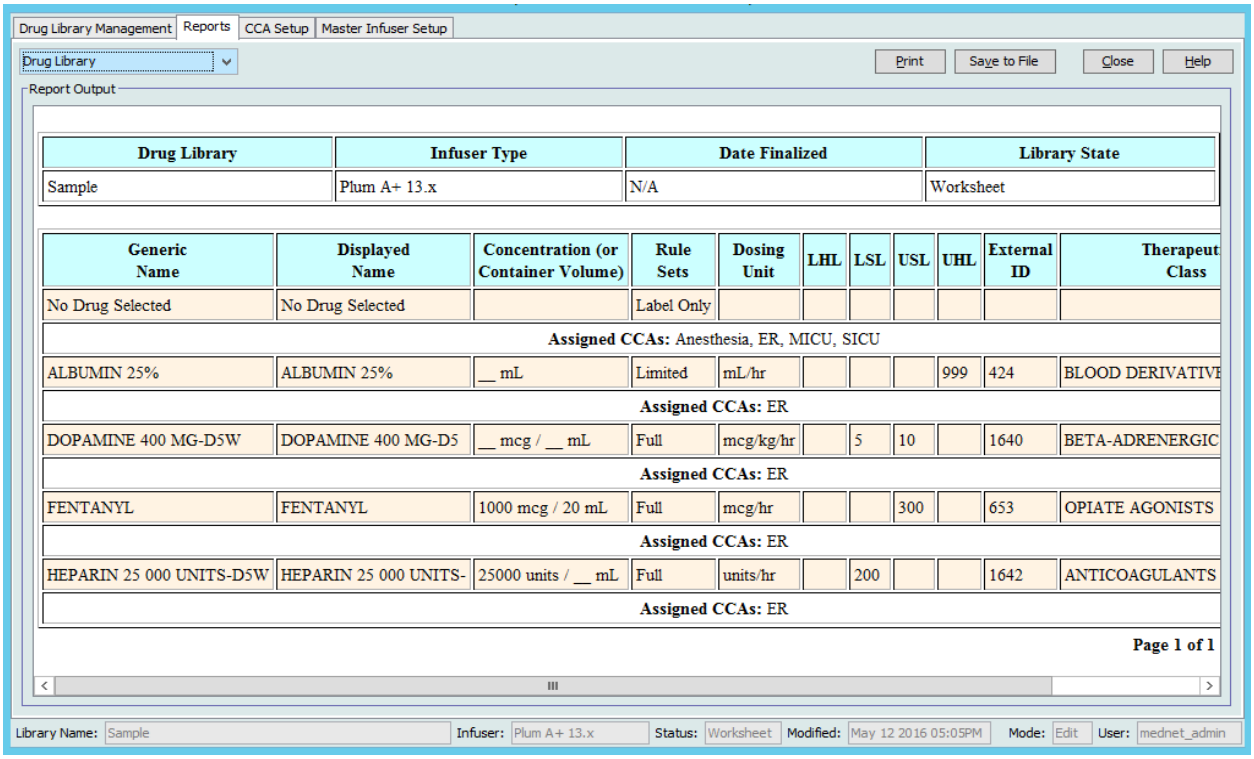
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

Plum 360	
Medication Entries	**Description**
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
[1] When the rule type is Limited, this field displays the container volume	

Note: 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 Center.

Plum A+ Drug Library

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



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)[1]	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

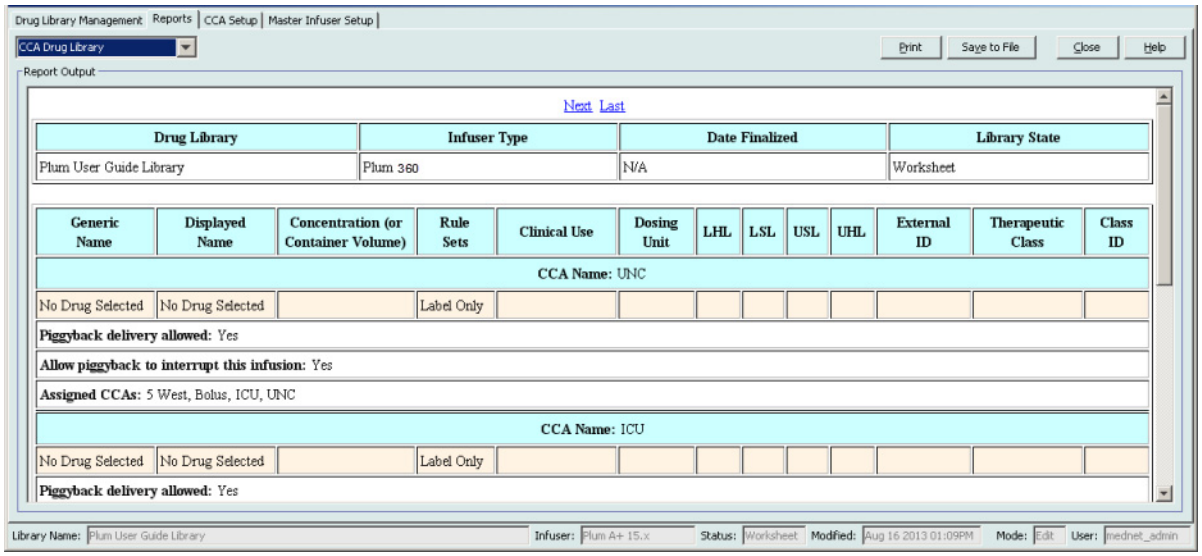
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

Plum A+	
Medication Entries	**Description**
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
[1] When the rule type is Limited, this field displays the container volume	

Note: 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 Center.

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 Management | Reports | CCA Setup | Master Infuser Setup

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

Report Output

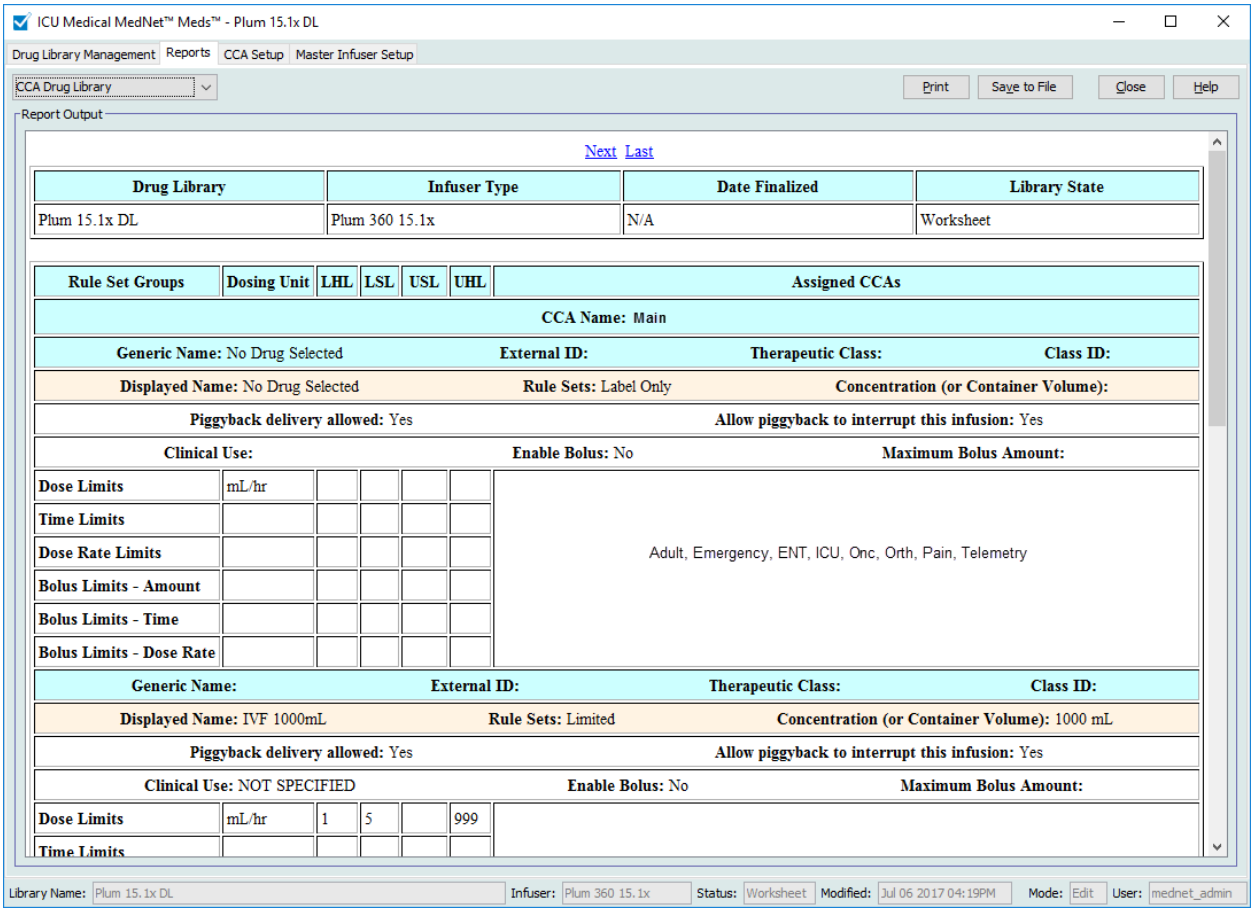
Next Last

Drug Library	Infuser Type	Date Finalized	Library State
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



ICU Medical MedNet™ Meds™ - Plum 15.1x DL

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
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

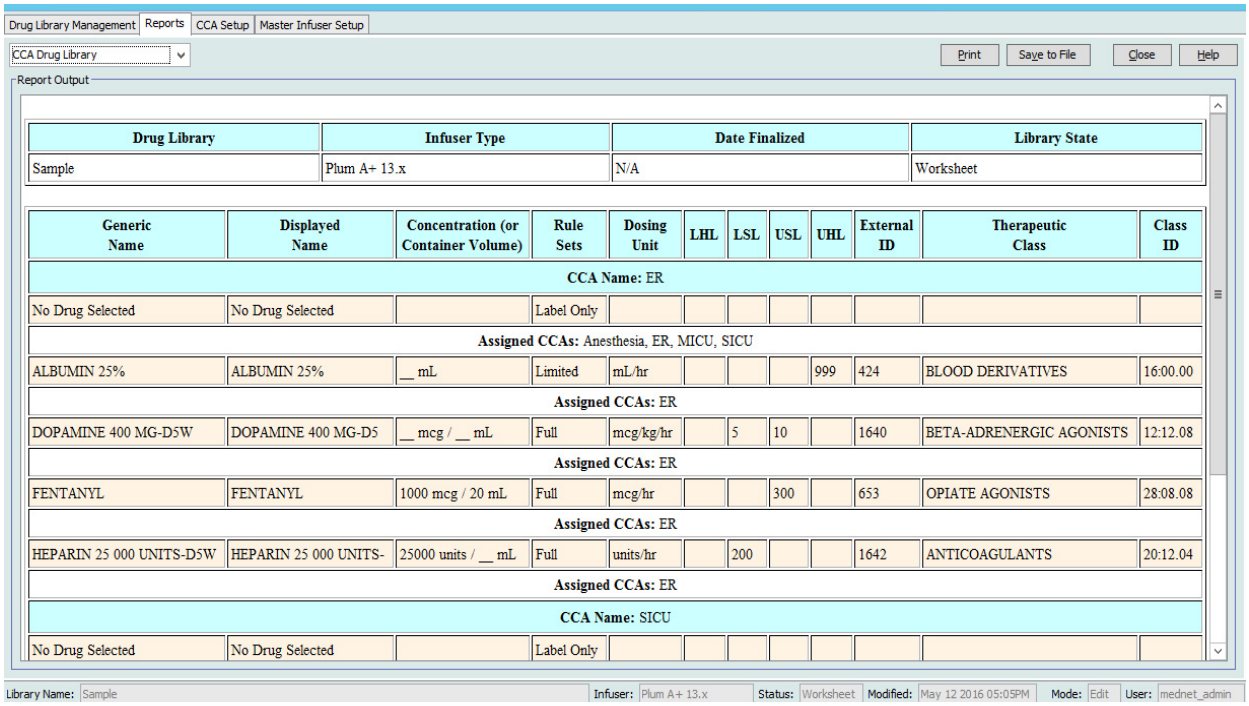
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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)[1]	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
[1] When the rule type is Limited, this field displays the container volume	

Note: 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 Center.

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.

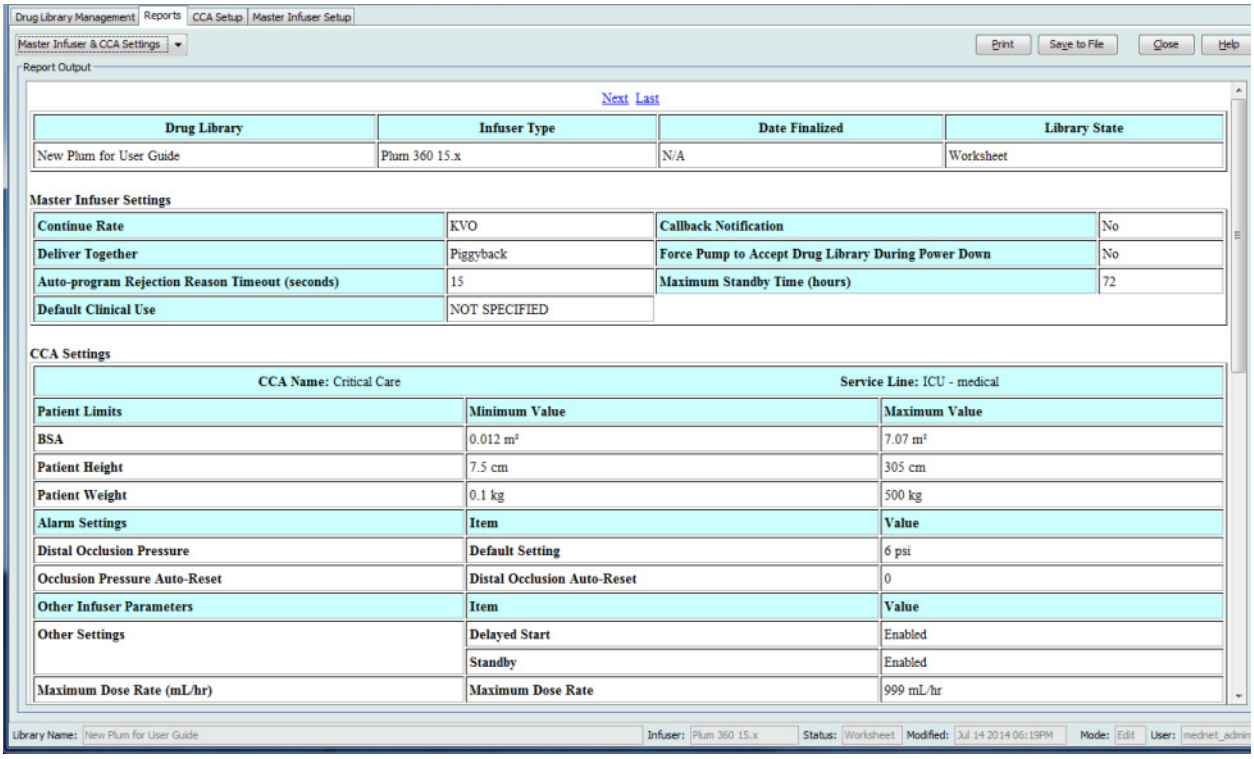


Plum A+	
Medication Entries	**Description**
Generic Name	The generic name of the medication
Displayed Name	The medication name that displays on the infuser
Concentration (or Container Volume)[1]	Concatenation (combination) of medication amount, medication unit, diluent amount, and diluent unit
Rule Sets	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
[1] When the rule type is Limited, this field displays the container volume	

Note: 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 Center.

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 m²	7.07 m²
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

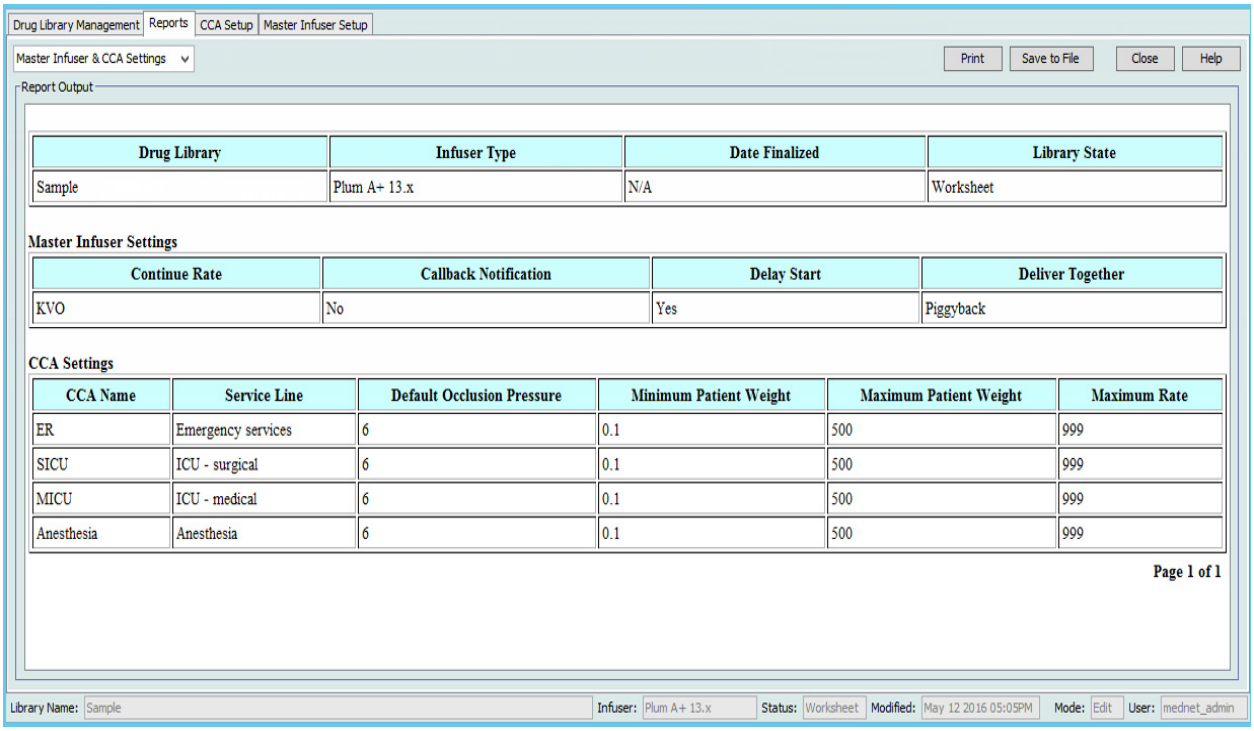
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

Plum 360	
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
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
CCA Settings	**Description**
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

Note: 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 Center.

Plum A+ Master Infuser and CCA Settings

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



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

Note: 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 Center.

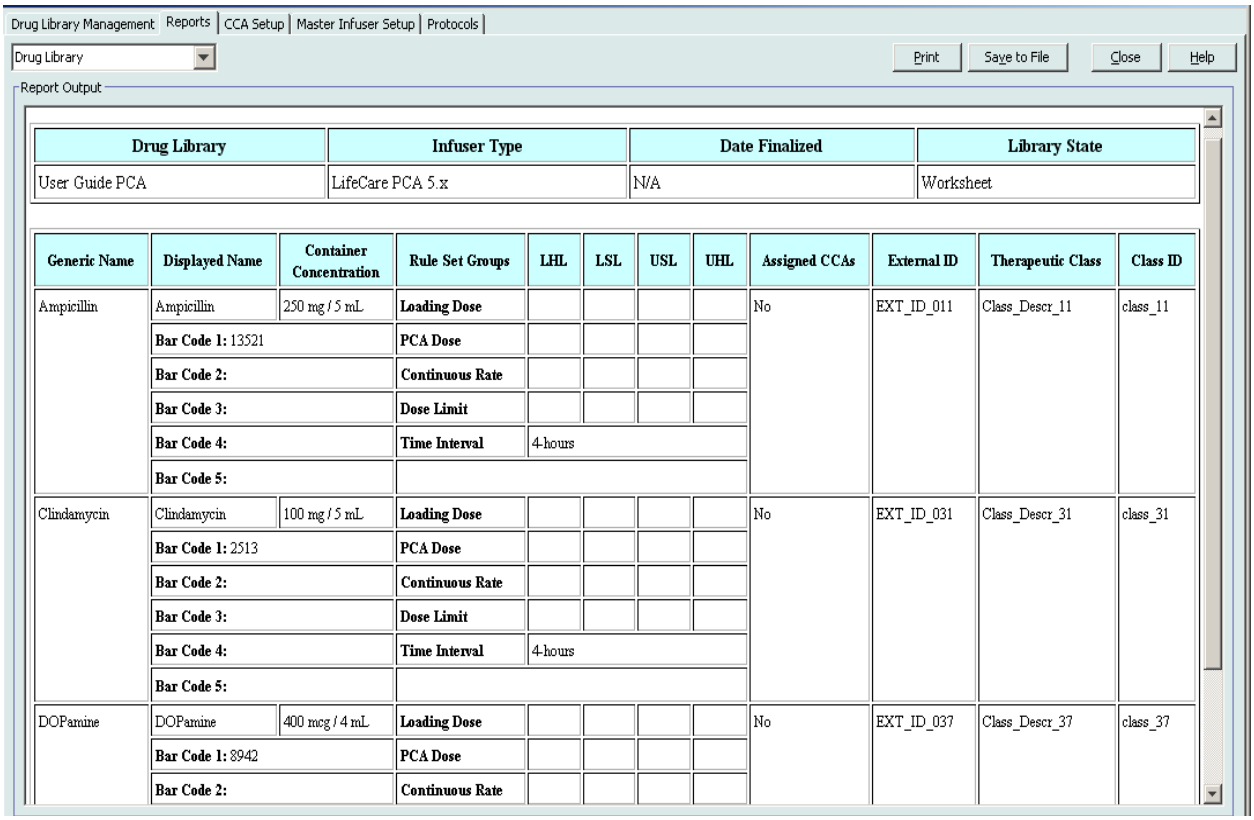
LifeCare PCA Drug Library Reports

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.



Drug Library	Infuser Type	Date Finalized	Library State
User Guide PCA	LifeCare PCA 5.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
Ampicillin	Ampicillin	250 mg / 5 mL	**Loading Dose**					No	EXT_ID_011	Class_Descr_11	class_11
	Bar Code 1: 13521		**PCA Dose**								
	Bar Code 2:		**Continuous Rate**								
	Bar Code 3:		**Dose Limit**								
	Bar Code 4:		**Time Interval**	4-hours							
	Bar Code 5:										
Clindamycin	Clindamycin	100 mg / 5 mL	**Loading Dose**					No	EXT_ID_031	Class_Descr_31	class_31
	Bar Code 1: 2513		**PCA Dose**								
	Bar Code 2:		**Continuous Rate**								
	Bar Code 3:		**Dose Limit**								
	Bar Code 4:		**Time Interval**	4-hours							
	Bar Code 5:										
DOPamine	DOPamine	400 mcg / 4 mL	**Loading Dose**					No	EXT_ID_037	Class_Descr_37	class_37
	Bar Code 1: 8942		**PCA Dose**								
	Bar Code 2:		**Continuous Rate**								

Note: 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 Center.

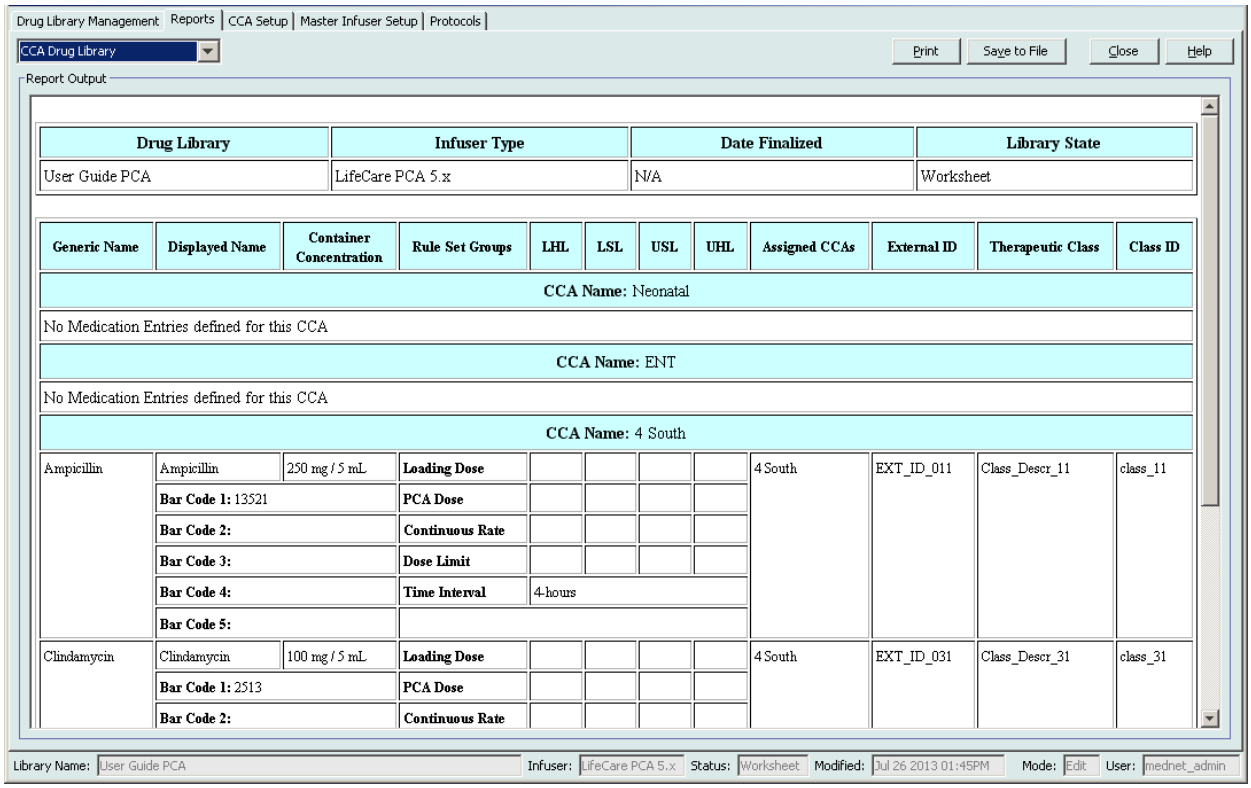
LifeCare PCA	
Field	**Description**
Generic Name	The generic name of the medication
Displayed Name	The medication name that displays on the infuser
Container Concentration	Concatenation (combination) of medication amount, medication unit, diluent amount, and diluent unit
Bar Code	The bar code(s) associated 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

Note: 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 Center.

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.



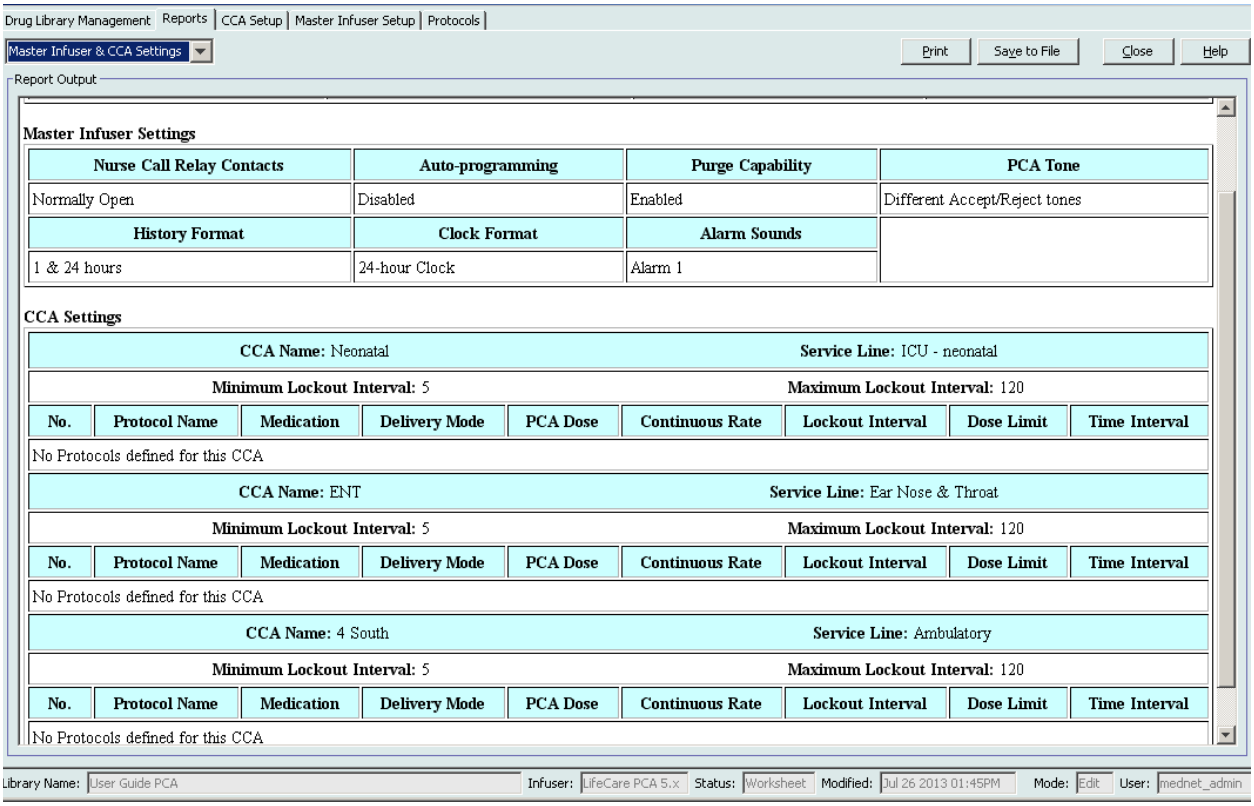
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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

Note: 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 Center.

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

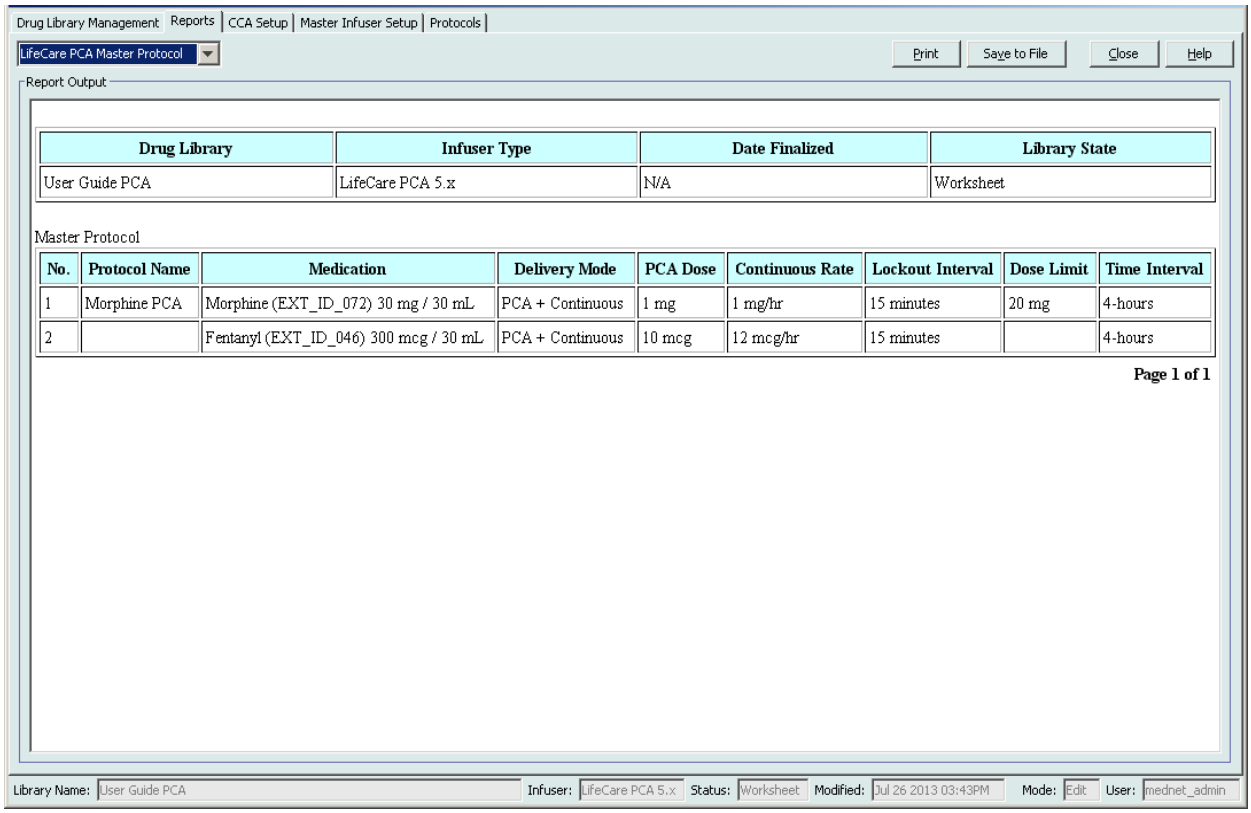
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

LifeCare PCA	
Field	**Description**
Master Infuser Settings	
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
CCA Settings	
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
Protocol	
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

Note: 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 Center.

LifeCare PCA Master Protocol

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



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

Note: 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 Center.

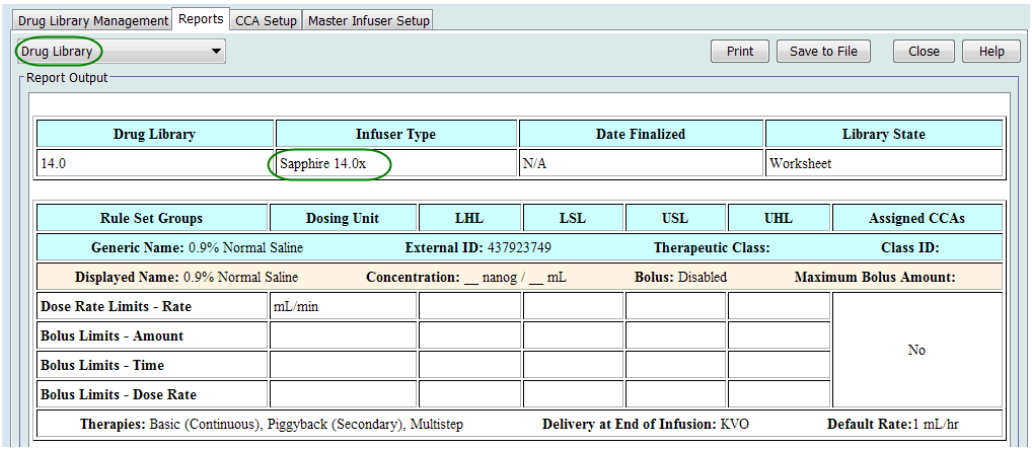
SapphirePlus Drug Library Reports

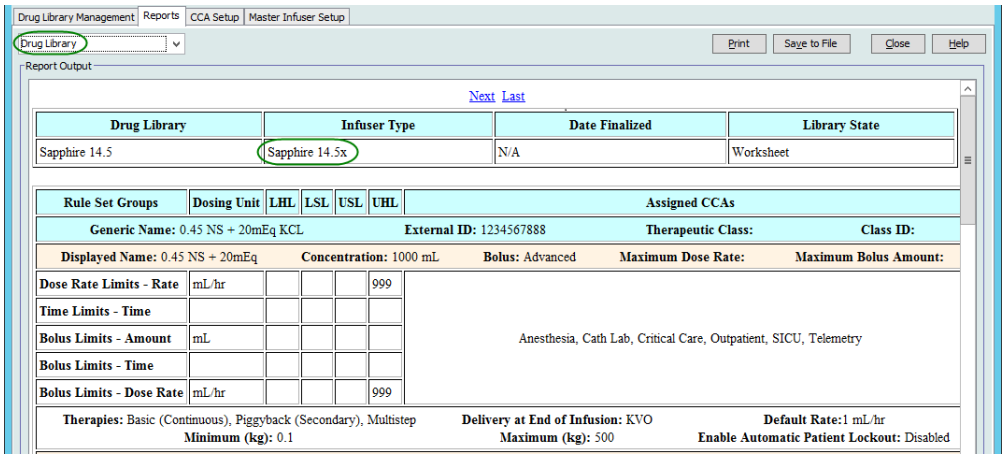
The following reports are available for the SapphirePlus infuser:

- 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.





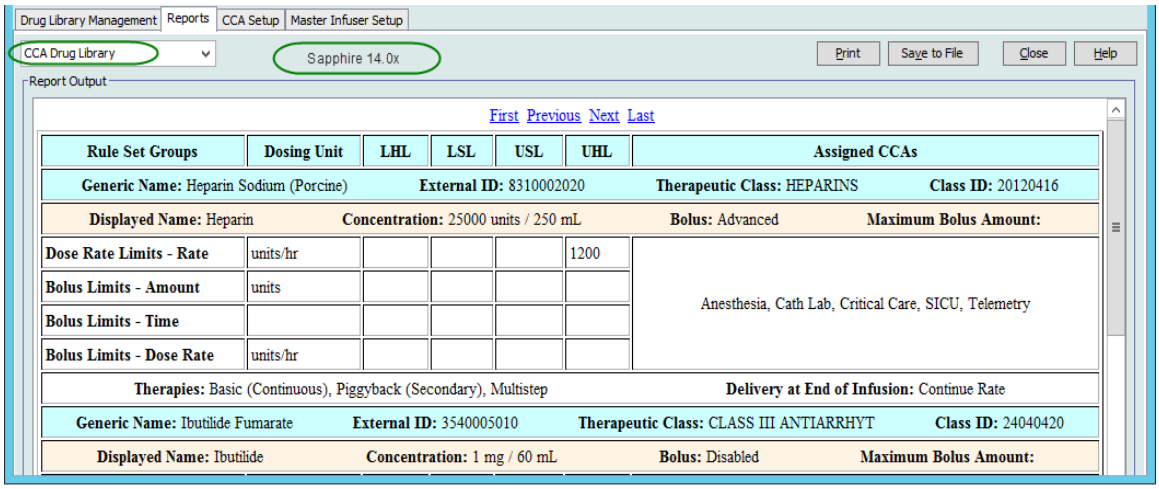
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

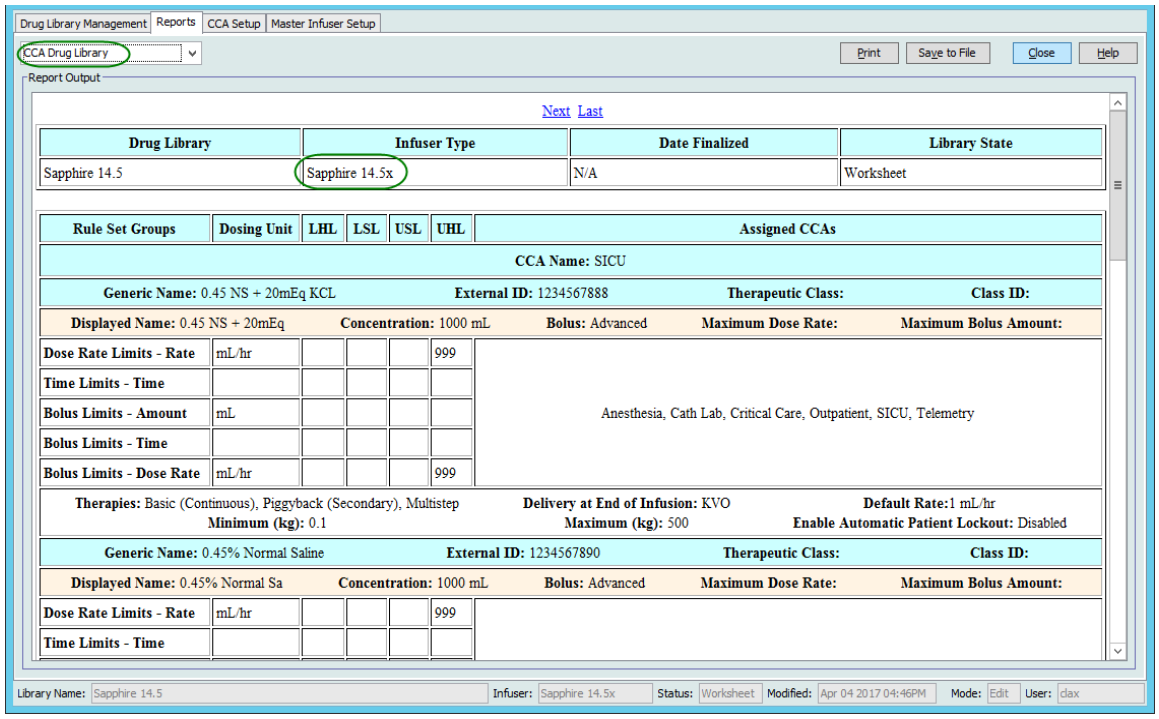
SapphirePlus	
Medication Entries	**Description**
Displayed Name	The medication name that displays on the infuser
Concentration or Container Volume	Concatenation (combination) of medication amount, medication unit, diluent amount, and diluent unit
Rule Set Groups	The types of rule sets created for the 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

Note: 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 Center.

SapphirePlus CCA Drug Library

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





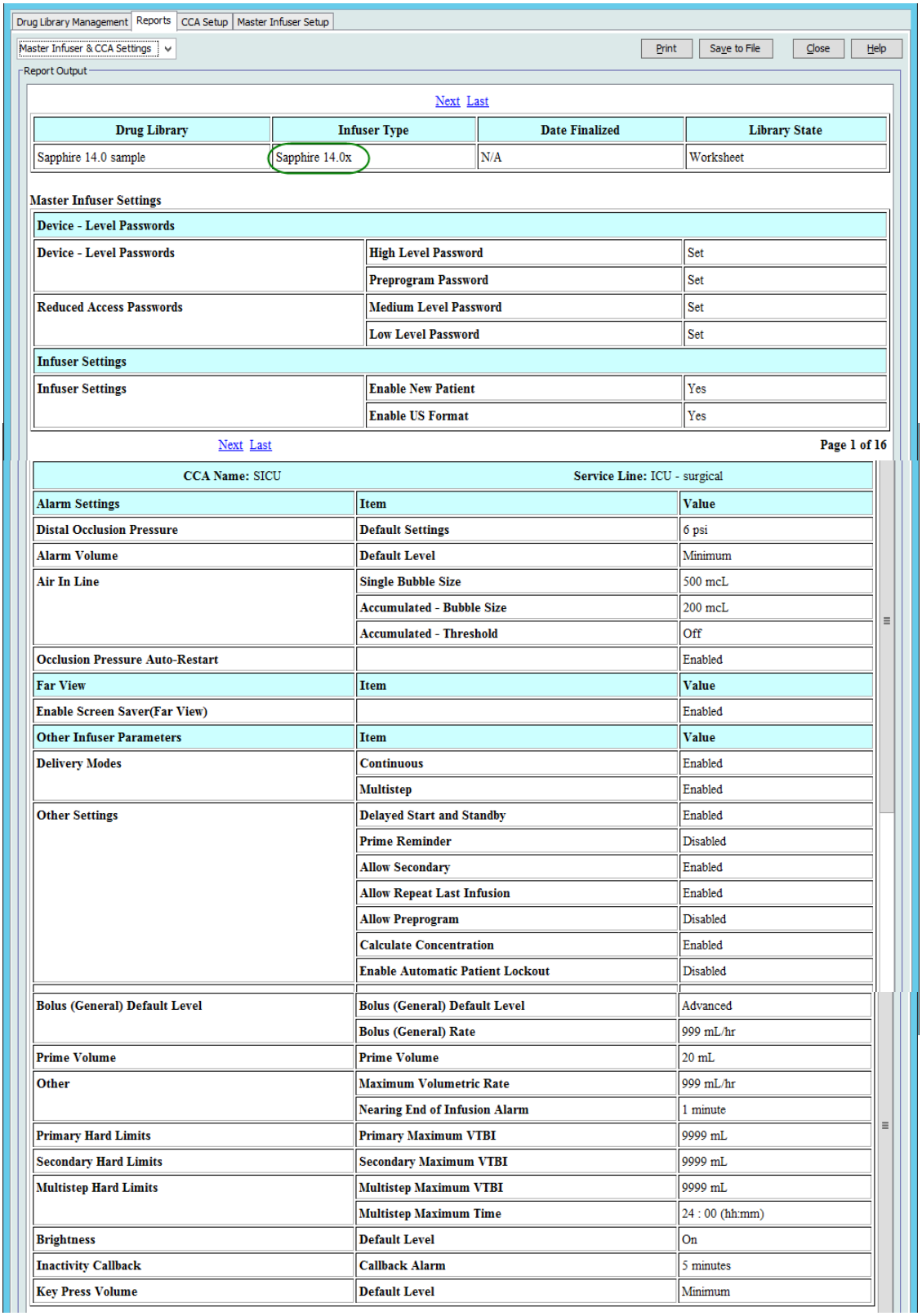
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

SapphirePlus	
Medication Entries	**Description**
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

Note: 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 Center.

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
Alarm Settings	**Item**	**Value**
Distal Occlusion Pressure	**Default Settings**	6 psi
Alarm Volume	**Default Level**	Minimum
Air In Line	**Single Bubble Size**	500 mcL
	Accumulated - Bubble Size	200 mcL
	Accumulated - Threshold	Off
Occlusion Pressure Auto-Restart		Enabled
Far View	**Item**	**Value**
Enable Screen Saver(Far View)		Enabled
Other Infuser Parameters	**Item**	**Value**
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

Note: 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 Center.

SapphirePlus 14.0 and 14.5	
Field	**Description**
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
Next Page Detail[1]	
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)

Note: 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 Center.

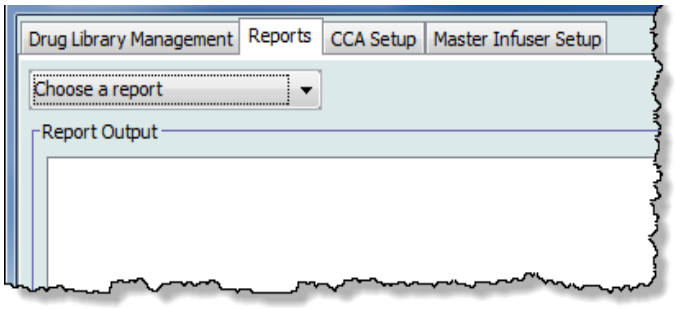
SapphirePlus 14.0 and 14.5	
Field	**Description**
Bolus (General) Default Level	Bolus Default level and rate for No Drug Selected
Prime Volume	Default level
Other	Maximum volumetric rate, and nearing end of infusion alarm
Primary Hard Limits	Maximum VTBI default level
Secondary Hard Limits	Maximum VTBI 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
[1] Begins on page two and contains information for each CCA	

Note: 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 Center.

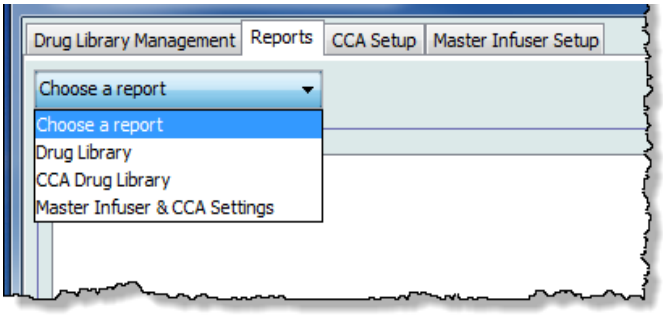
Printing Reports

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.

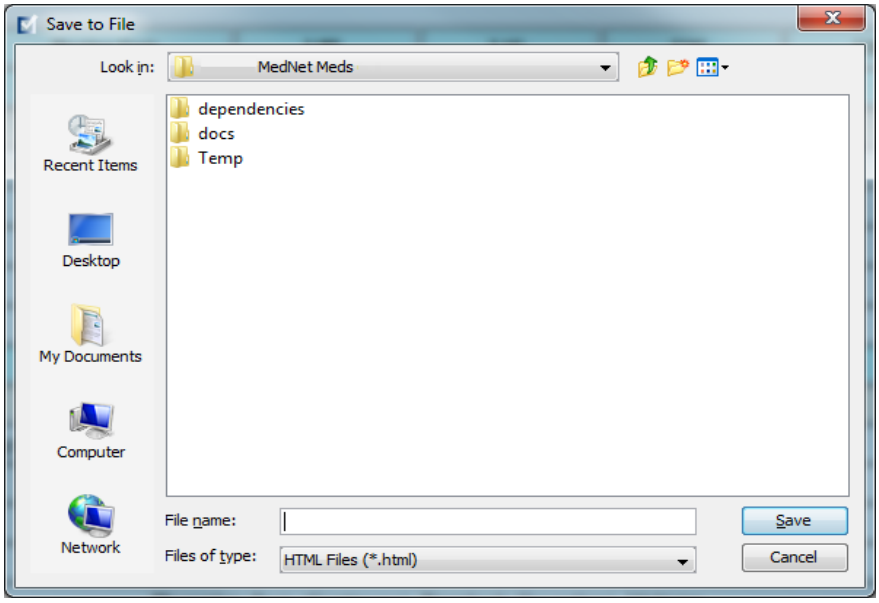
4. Click **Print**.

Note: 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 Center.

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.

Note: 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 Center.

Notes:

Note: 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 Center.

Chapter 8: Setting Up CCAs

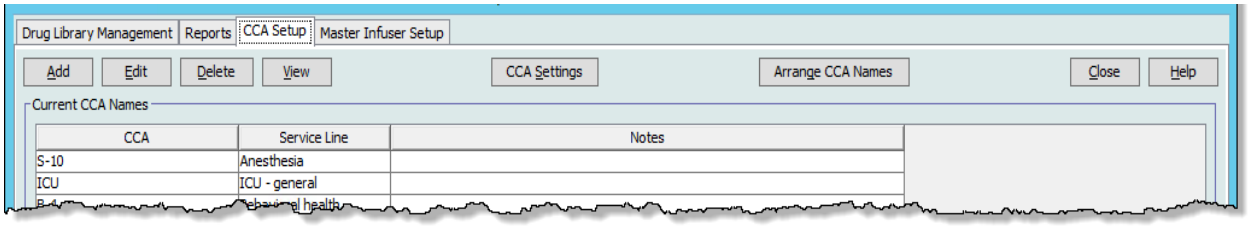
Overview

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 33.)



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.

Note: 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 Center.

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.

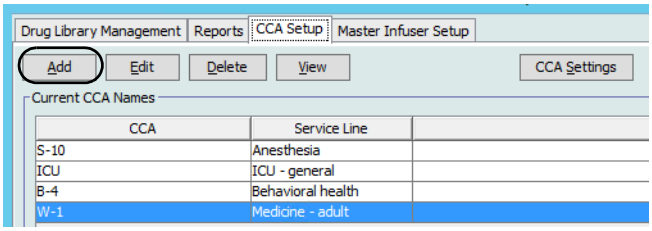
Note: You cannot edit or change the contents of the Service Line list.

- 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

Note: 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 Center.

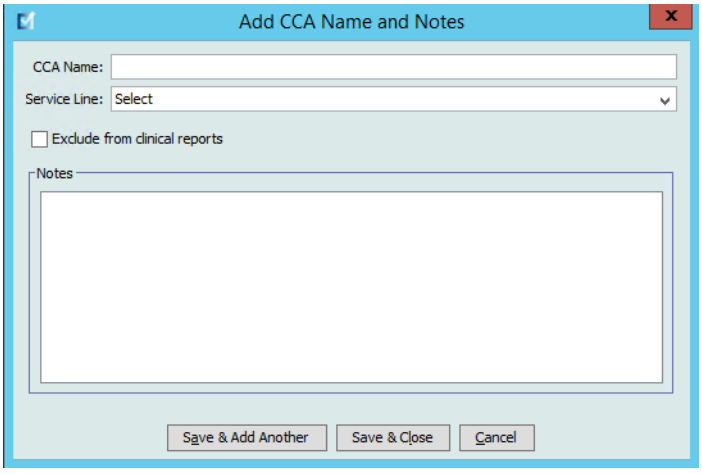
Create a New CCA

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.



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**.

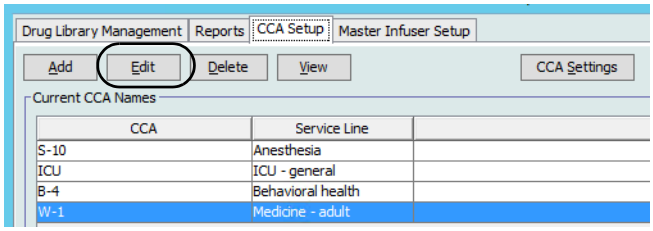
Note: Clinical reports include all reports except Asset Tracker, Asset Utilization, Event/Alarm Log, Infuser Status, and Software Download.

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

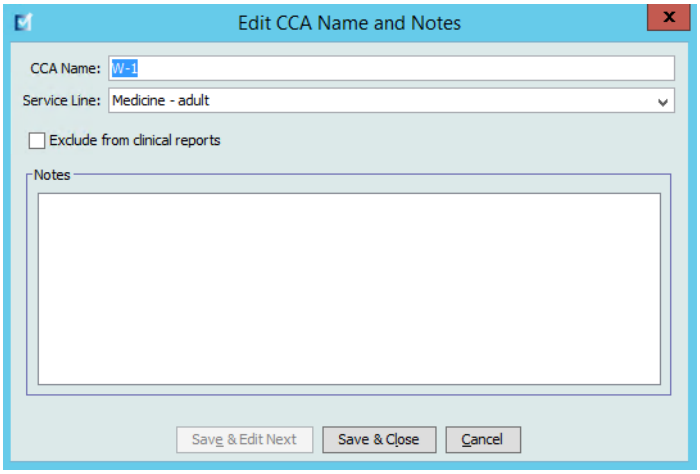
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.

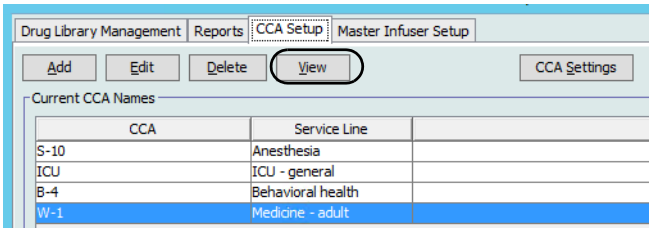


5. Click **Save & Edit Next** or **Save & Close**.

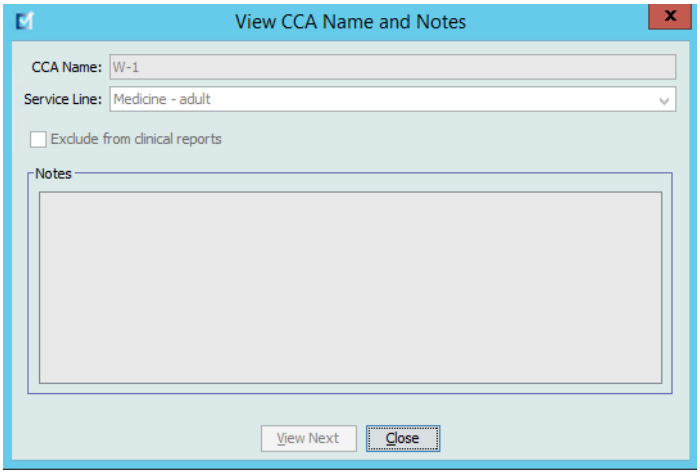
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

View a CCA

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



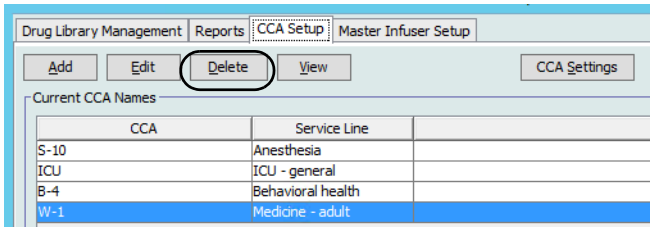
3. Click **View**.
4. When you are finished viewing, click **View Next** or **Close**.



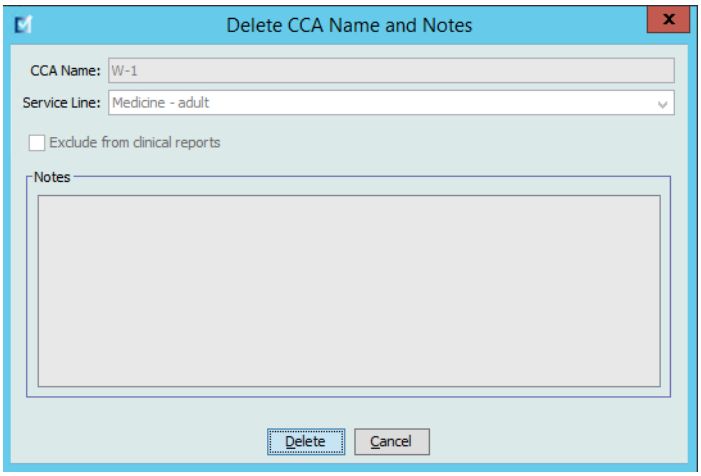
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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**.



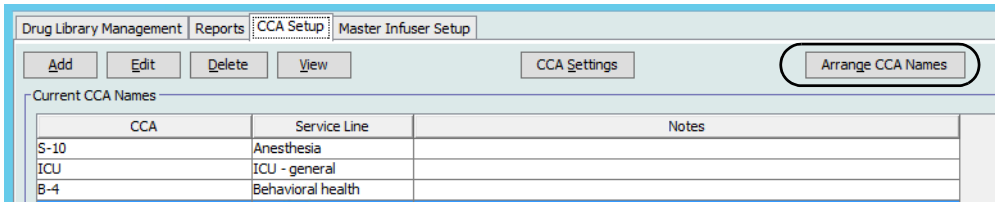
The CCA is permanently deleted from the Worksheet.

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

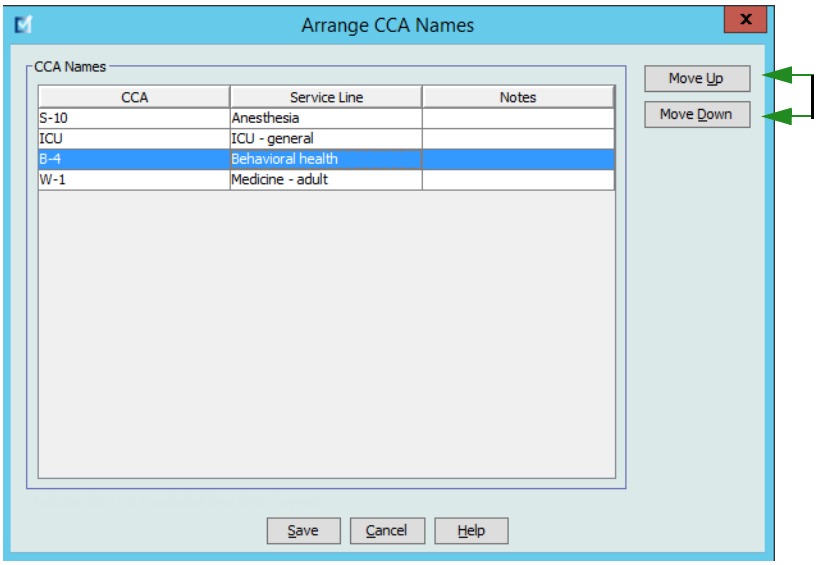
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.*

Note: 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 Center.

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.

Note: 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 Center.

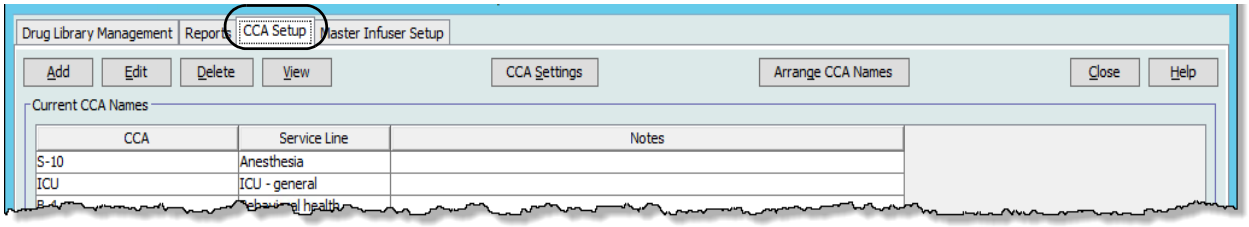
Following are the default CCA infuser settings:

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

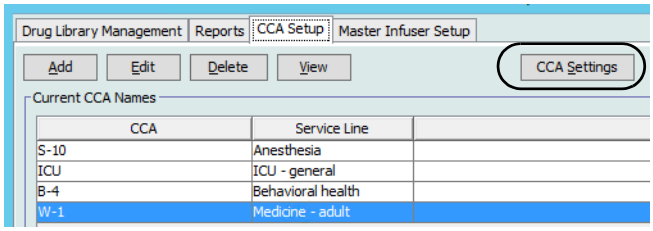
Note: When you create a new CCA, it contains the default infuser settings until you change them.

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 33).



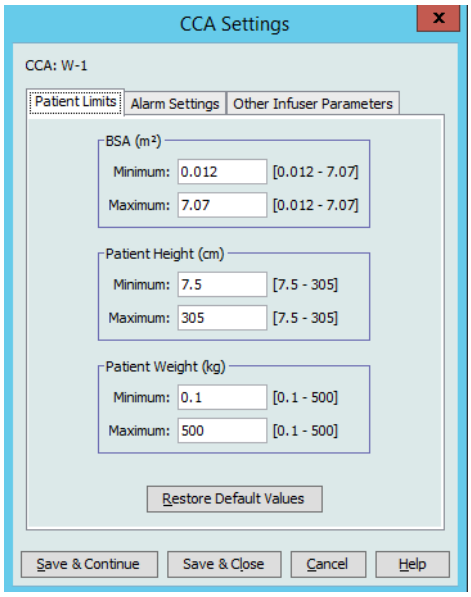
2. Select a CCA from the CCA setup view.



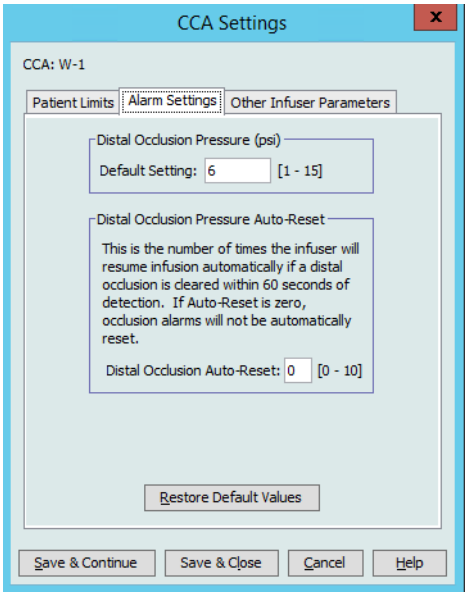
3. Click the **CCA Settings** button.

Note: 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 Center.

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)

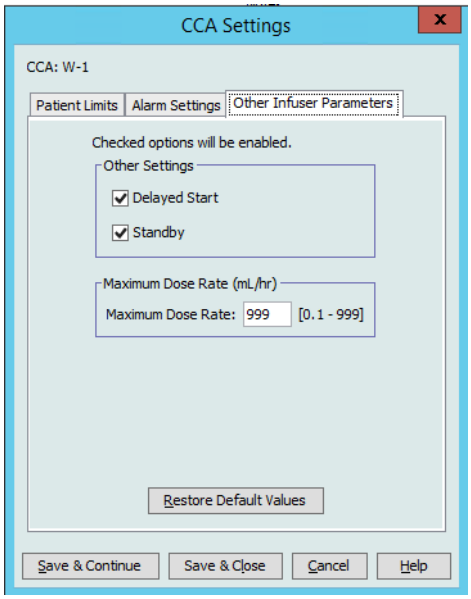


5. Select the **Alarm Settings** tab and edit the following information:
    - **Distal Occlusion Pressure** (1 psi to 15 psi or 52 mmHg to 776 mmHg)
    - **Distal Occlusion Auto-Reset** (0 to 10)



Note: 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 Center.

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**.

Note: 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 Center.

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.

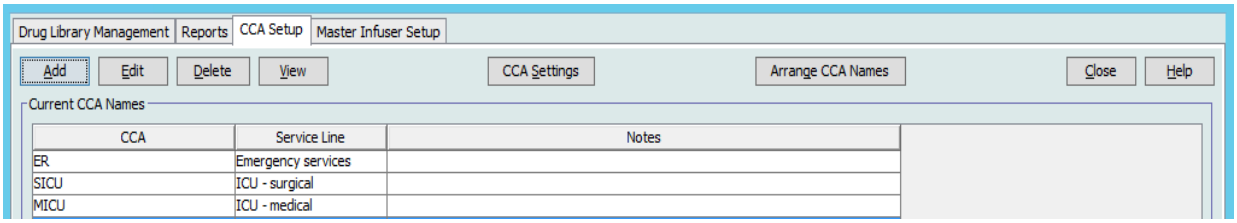
Following are the default CCA infuser settings:

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

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

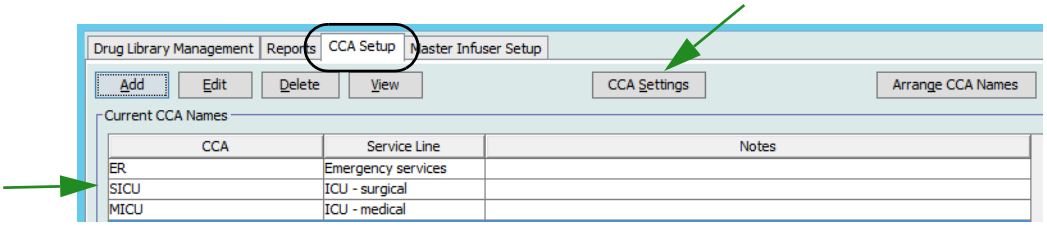
To set up the Plum A+ CCA settings:

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 33).



Note: 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 Center.

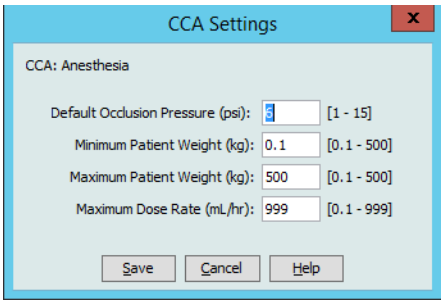
2. Select a CCA from the CCA setup view.



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.

Note: 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 Center.

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:

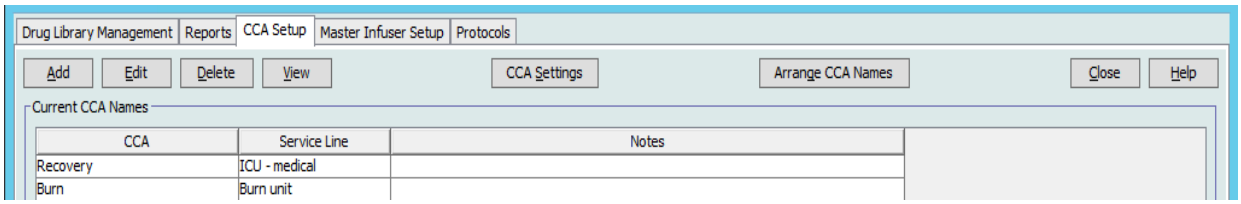
- Minimum Default Lockout Interval (5 minutes)
- Maximum Default Lockout Interval (120 minutes)

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

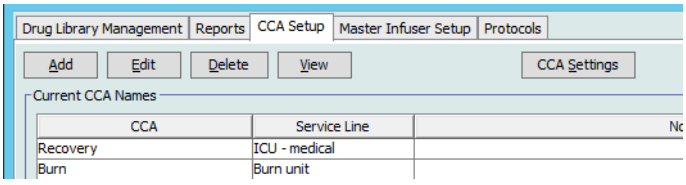
Note: The limits on the lockout interval cannot be changed when programming the infuser.

To set up the LifeCare PCA CCA:

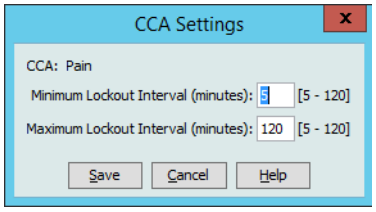
1. Display the CCA Setup view by opening a Worksheet for editing and clicking the **CCA Setup** tab (for instructions on opening a Worksheet, see **Chapter 5: The Library Directory** on page 33).



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**.

Note: 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 Center.

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.

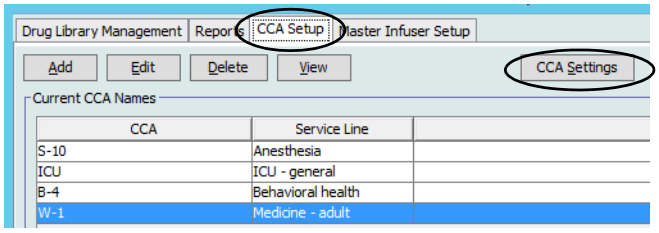
Note: The CCA settings apply to all medications in the CCA.

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 33**)**.
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

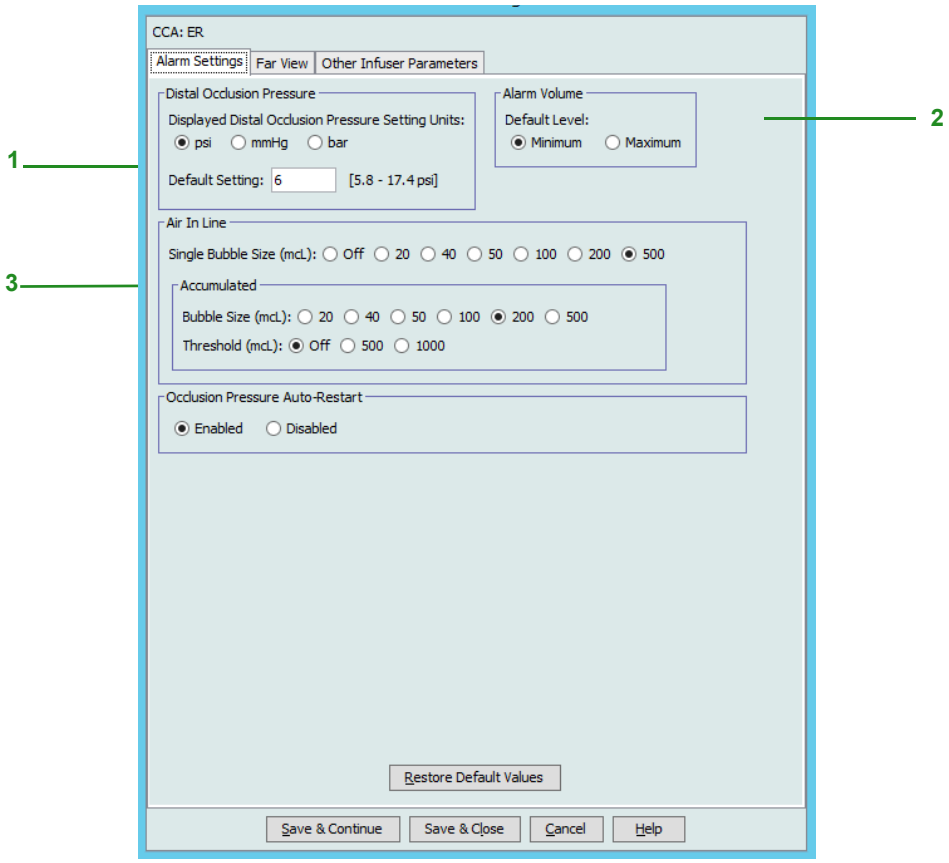
CCA settings for the SapphirePlus 14.5 infuser are arranged in four tabs:

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

Note: 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 Center.

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.

Note: 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 Center.

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.

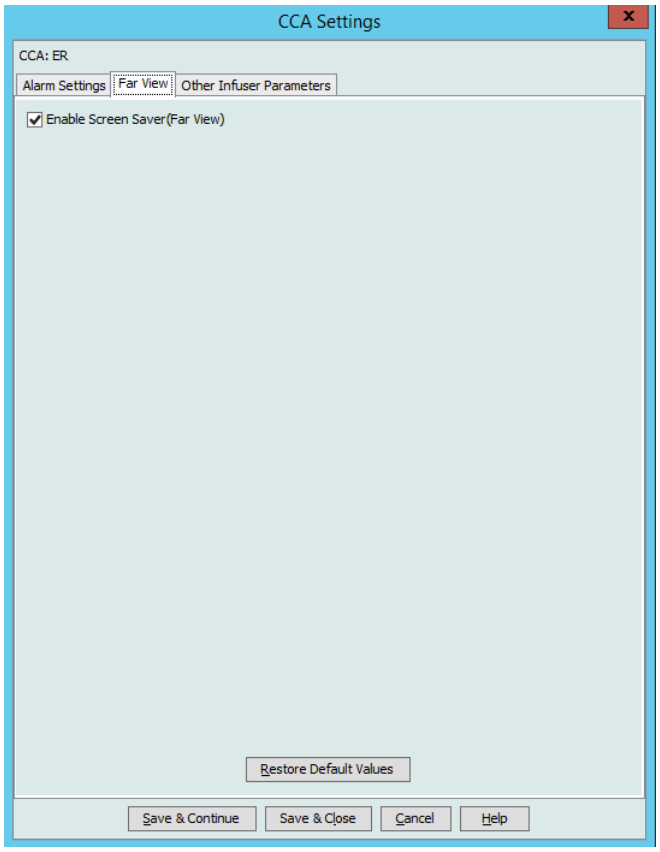
5. Click **Save & Continue** or **Save & Close**.

6. If continuing, select the **Far View** tab.

Note: 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 Center.

Far View

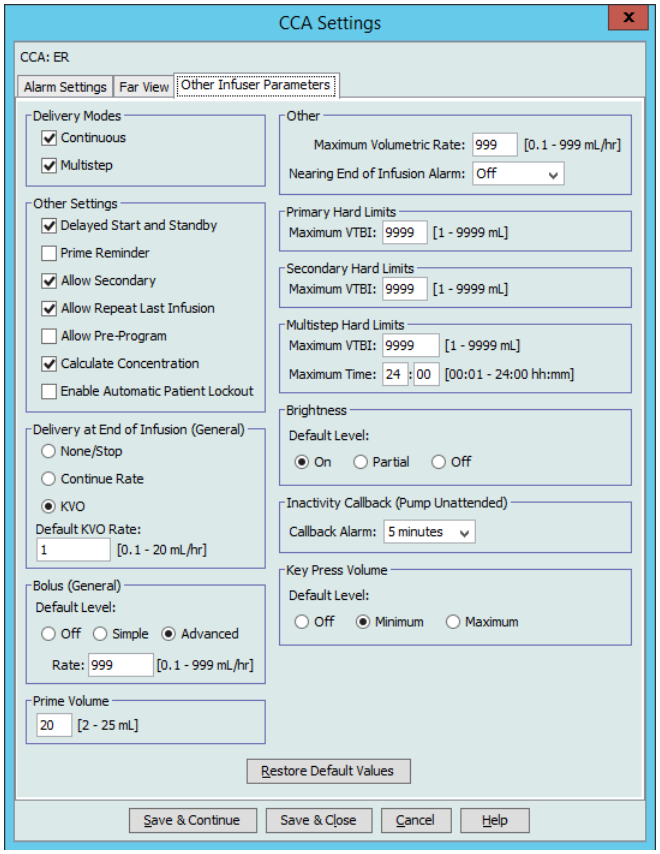
When checked, allows **Enable Screen Saver (Far View)** to be displayed.



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

Note: 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 Center.

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.

Note: 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 Center.

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.

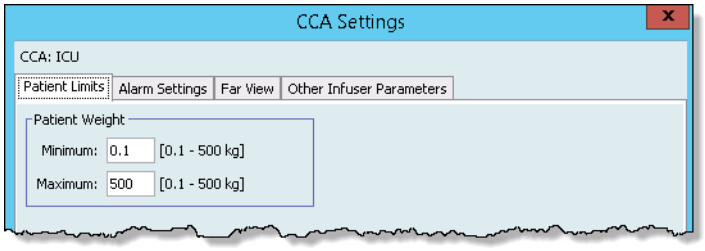
Note: You can **Restore Default Values** by clicking on that button.

13. Click **Save & Close**.

Note: 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 Center.

SapphirePlus 14.5

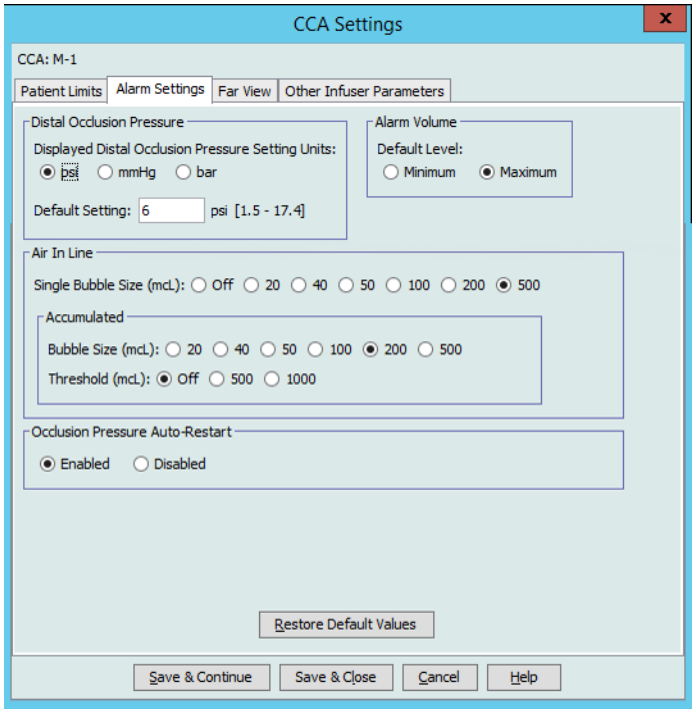
Patient Limits



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.

Note: 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 Center.

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.

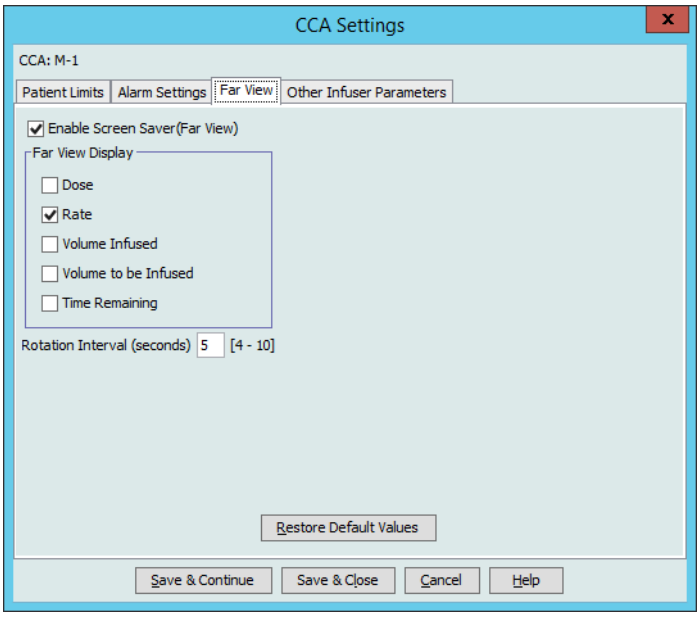
4. You can select **Occlusion Pressure Auto-Restart** to be either the default **Enabled** or **Disabled**. If you select **Enabled**, the infusion will resume once the occlusion is cleared.

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

Note: 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 Center.

Far View

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



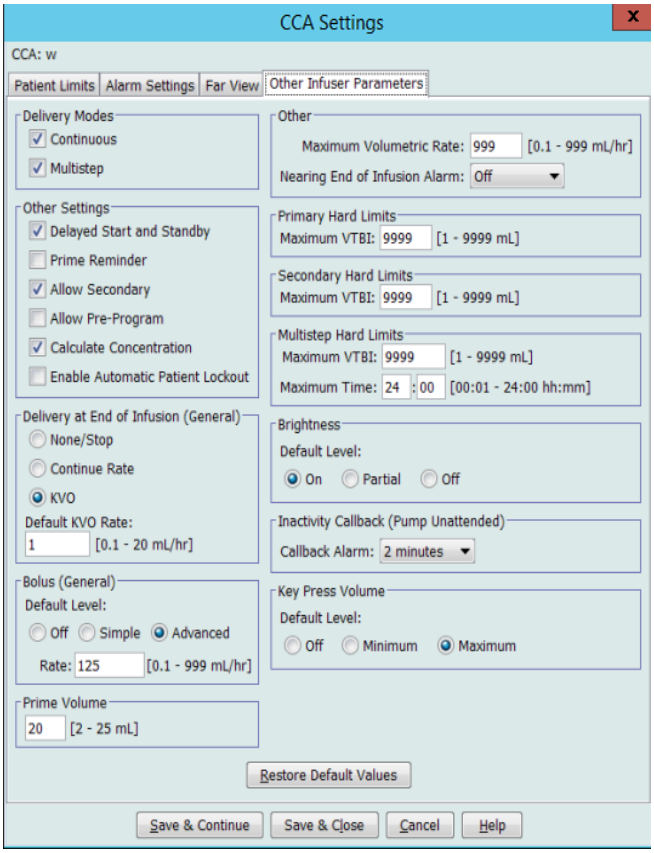
You can select any or all of the following from the Far View Display:

- 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.

Note: 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 Center.

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 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.

Note: 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 Center.

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**.

Note: 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 Center.

Notes:

Note: 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 Center.

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+ drug library. 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: Medication entries configured with a medication name, complete or partial concentration, and a specific dosing unit.

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.

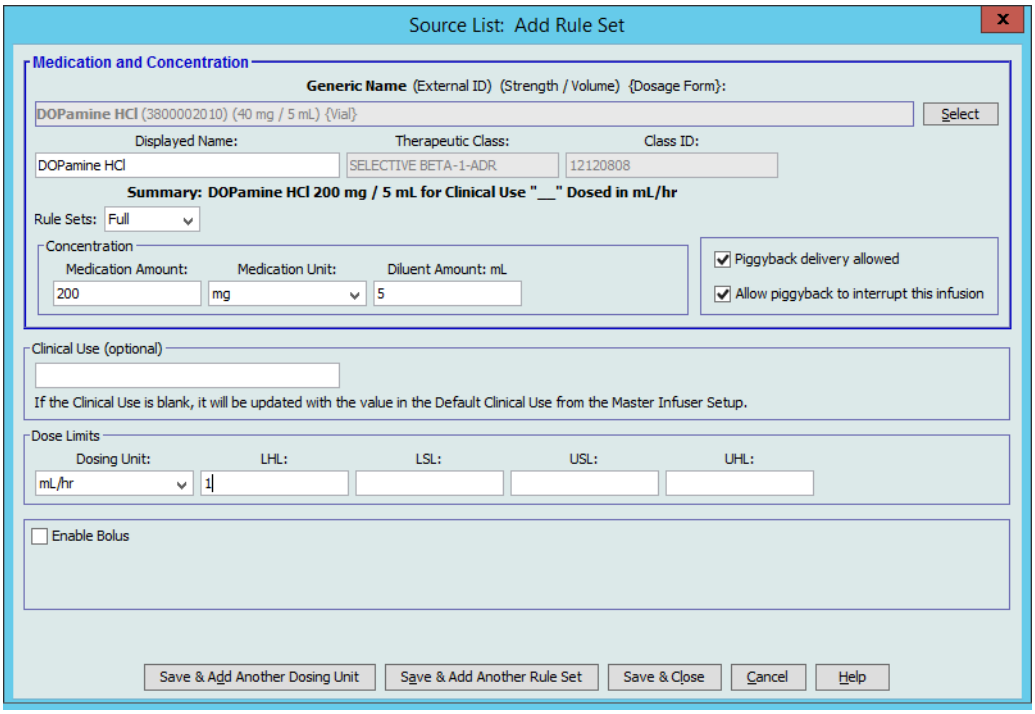
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.

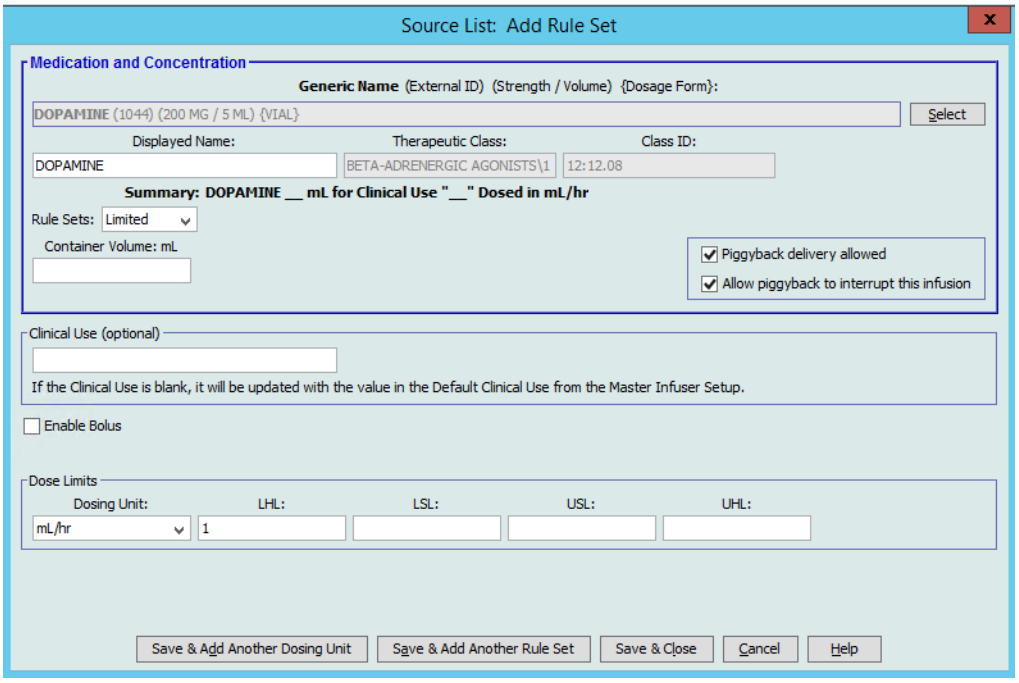


Leaving the medication or diluent amounts blank allows the clinician to enter a non-standard concentration at the time of programming. Full rule sets defined with a partial concentration will require the clinician to enter the concentration values when the dosing units are not mL/hr. When the dosing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

Note: 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 Center.

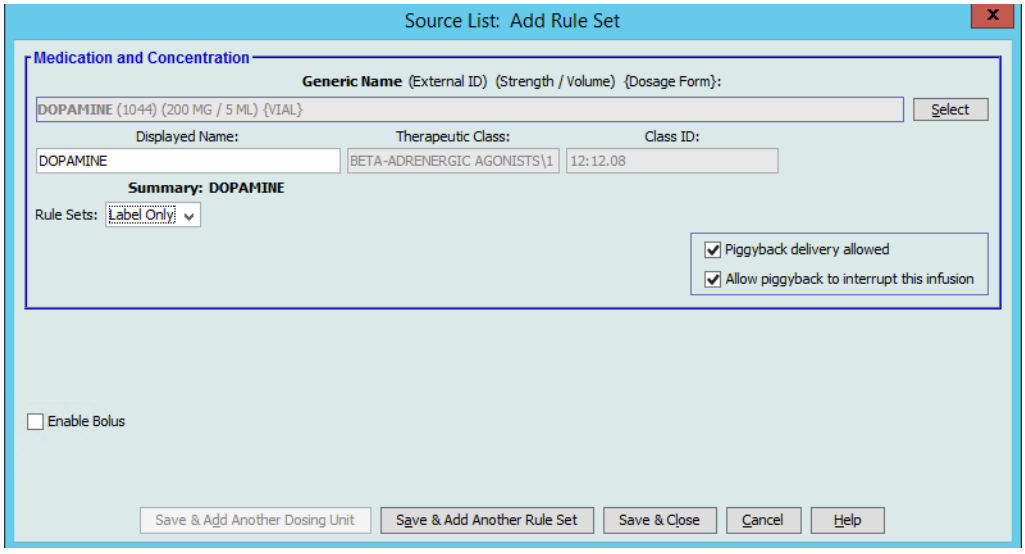
Limited Rule Set

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.



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.



Note: 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 Center.

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:

Lower Hard Limit (LHL) < Lower Soft Limit (LSL) <= Upper Soft Limit (USL) < 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.

Note: 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 Center.

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

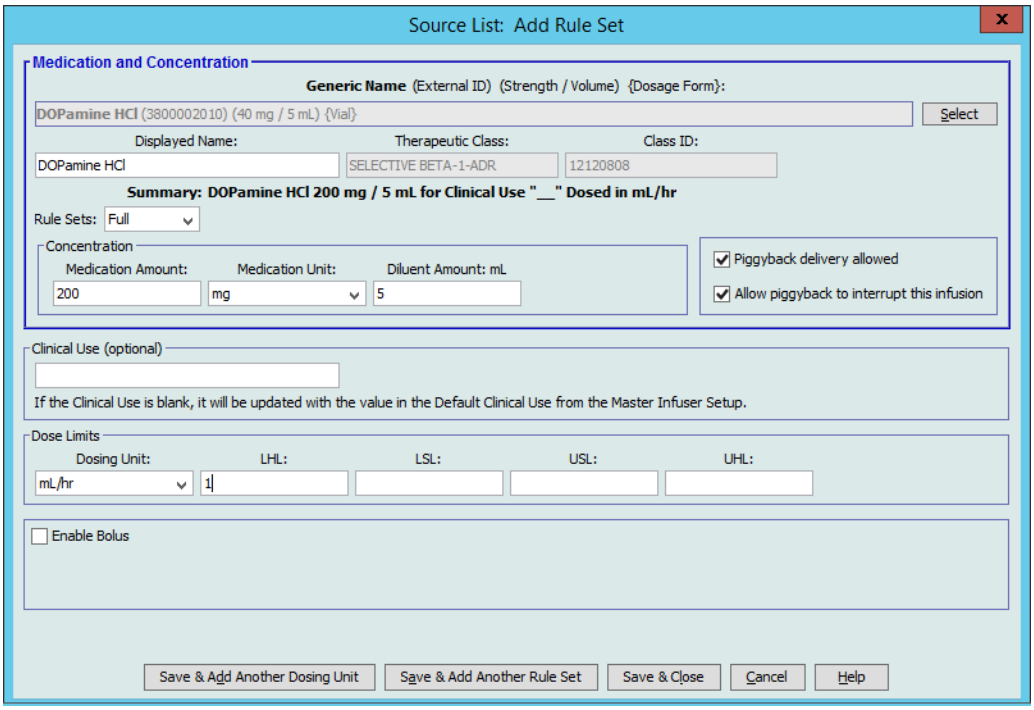
The ICU Medical MedNet Meds software uses the following conventions for Plum A+ medication entries:

- 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.

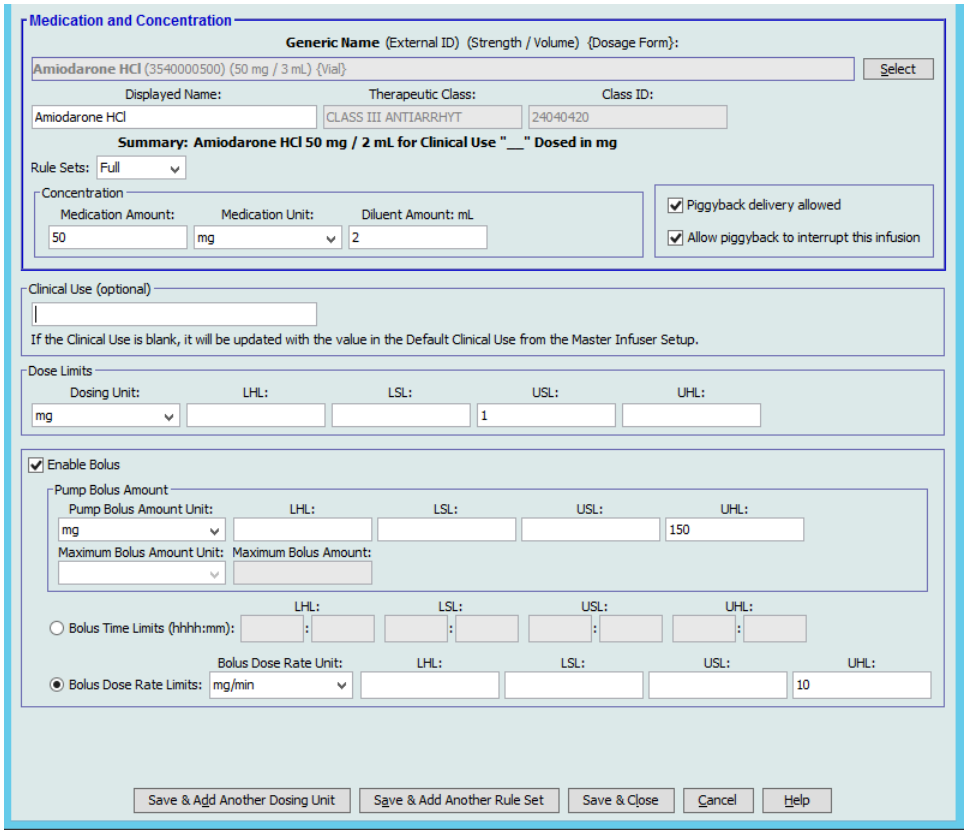
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.



Plum 360 with Bolus Enabled



Note: 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 Center.

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.	• Varies depending on the character width • Cannot be blank **CAUTION:** You cannot use the following characters in the displayed name: comma (,), less than (<), greater than (>), single quotation marks (‘), inverted commas (“), and ampersand (&.) **Note:** The display font changes on the Plum A+ infuser for lengthy displayed names.
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: • 0.1–9999 and “Blank” For medication amounts in units: • 0.1–99999999 and “Blank”
Medication Unit	Allows you to select the unit of measure for your medication amount.	mcg, mg, grams, mEq, Million Units, mmol and units

Note: 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 Center.

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.	• 0.1–9999 and “Blank”
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.	For complete dosing units, please consult your infuser’s System Operating Manual For the Plum 360 15.1x only: Time Limits and Dose Rate limits are available for either time-based, or non time-based units
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.	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.		

Note: 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 Center.

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

Note: 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 Center.

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

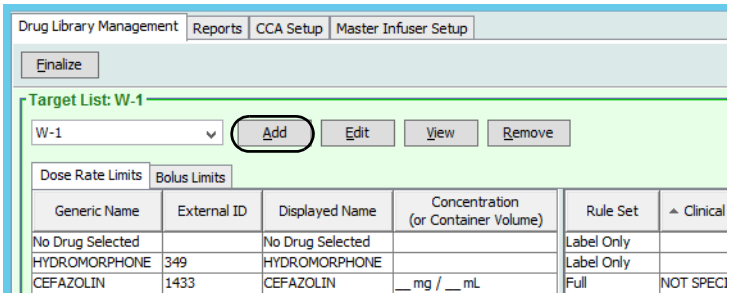
a. Clinical Use with the Default setting of Clinical Use topping the series

b. Each group in Alphabetical order

c. Dosing units

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

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

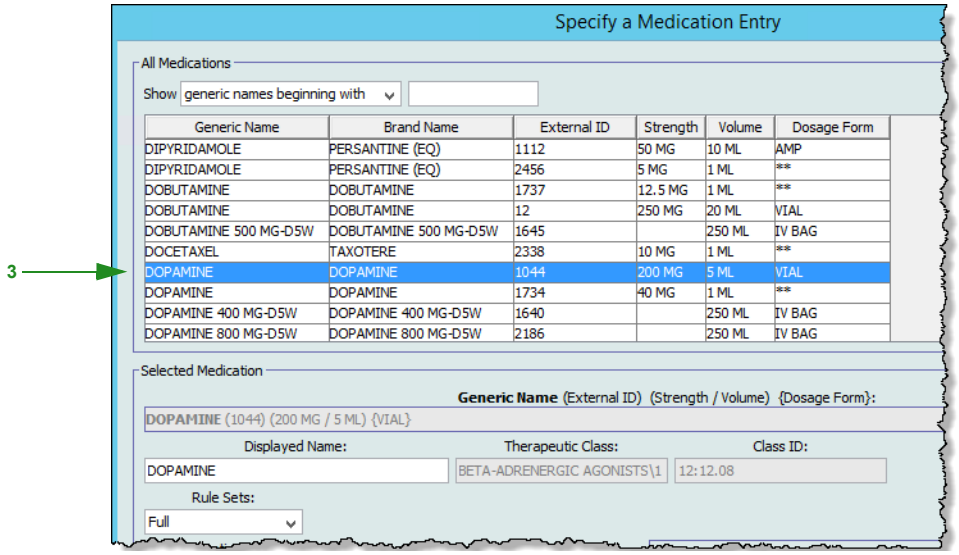


2. From the Target List, click **Add**.

Note: 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 Center.

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.

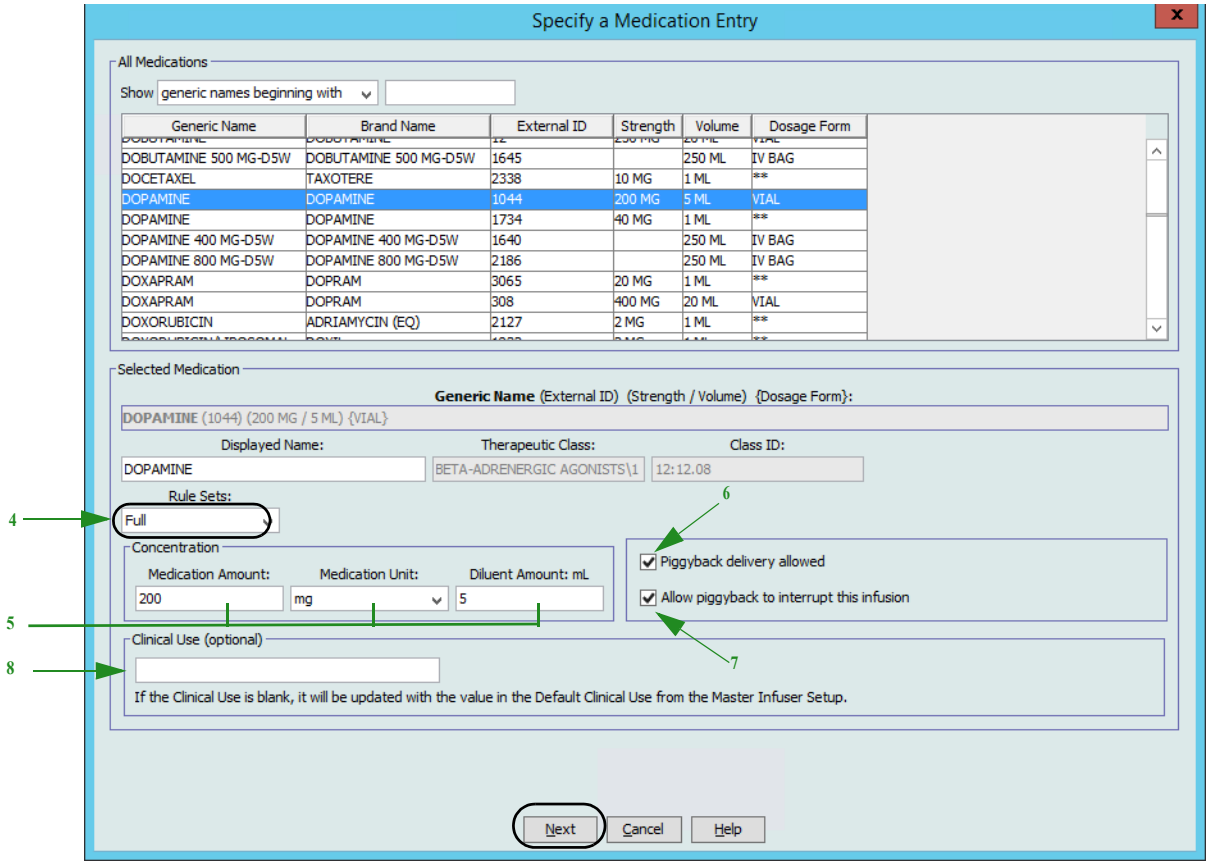


Note: If the desired generic name is not in the **Generic Name** list, you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

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.

Note: 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 Center.

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**.



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.)

Note: 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 Center.

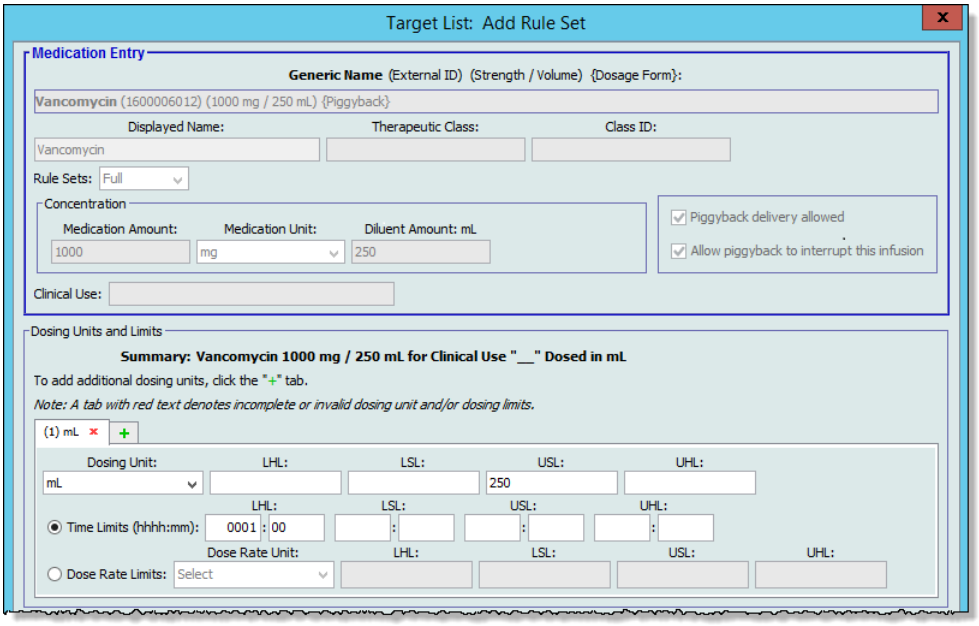
For the Plum 360 15.1x only

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:



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.

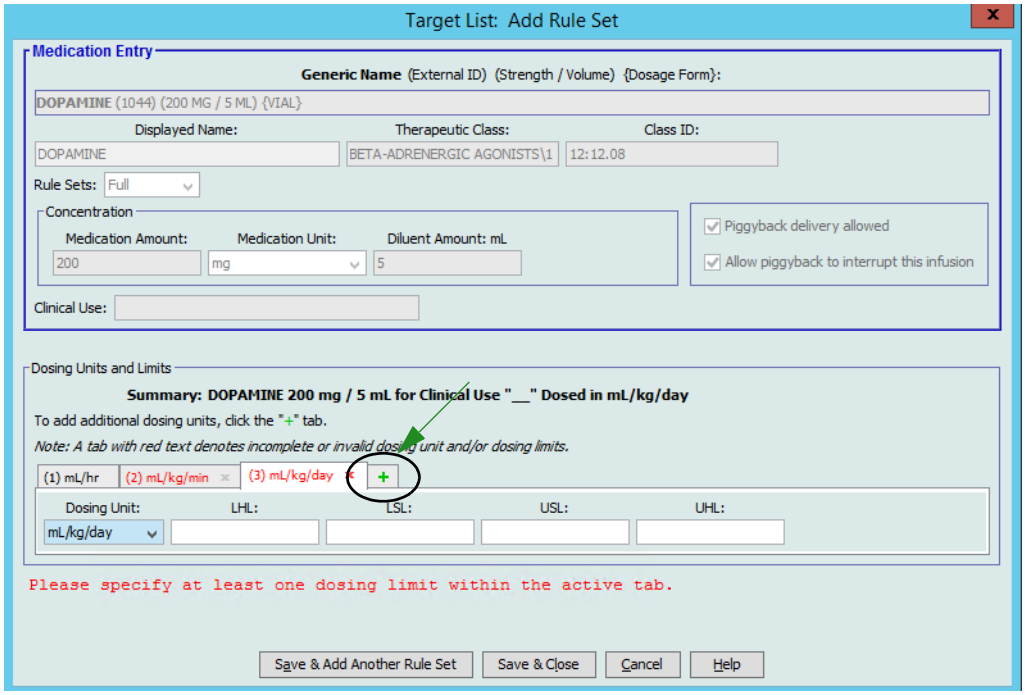
Time Limits is the default, using the format hhhh:mm with a maximum of 1500:00.

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.

Note: 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 Center.

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.



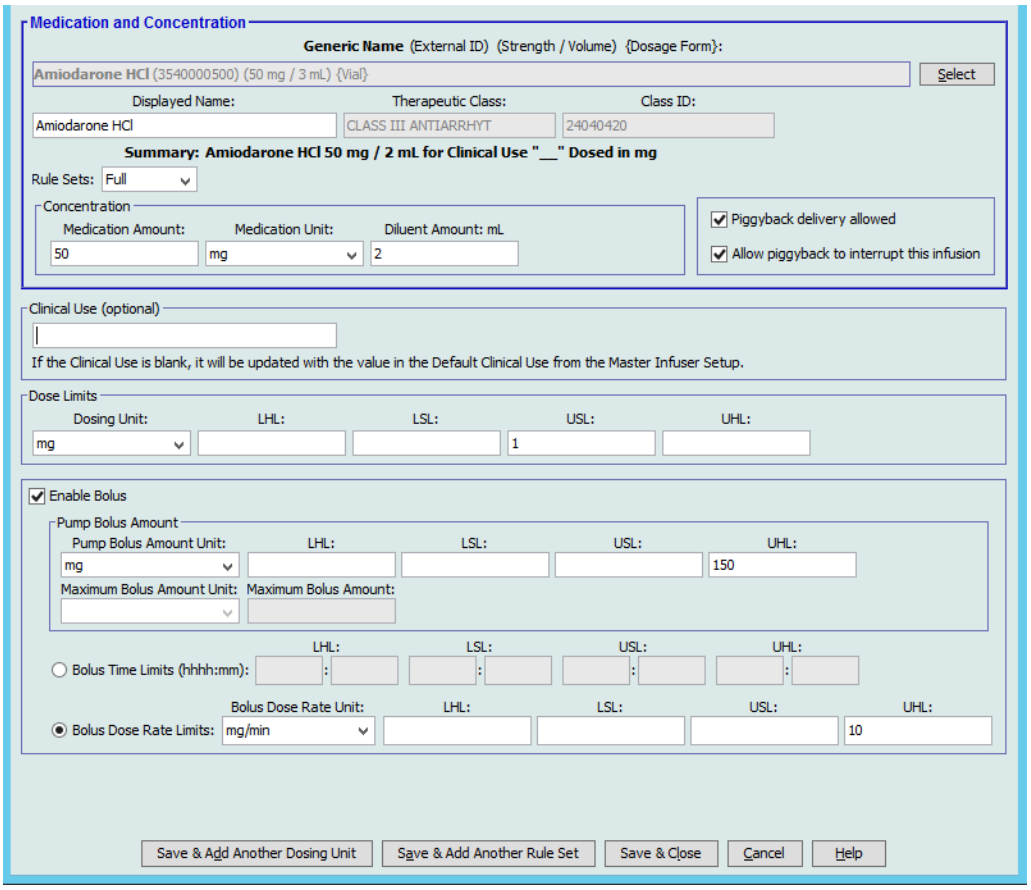
Note: A tab with red text denotes either incomplete or invalid dosing unit and/or dosing limits.

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:



To Set a Bolus:

a. 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.

b. Enter the desired values for **Bolus Time Limits**: Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit.

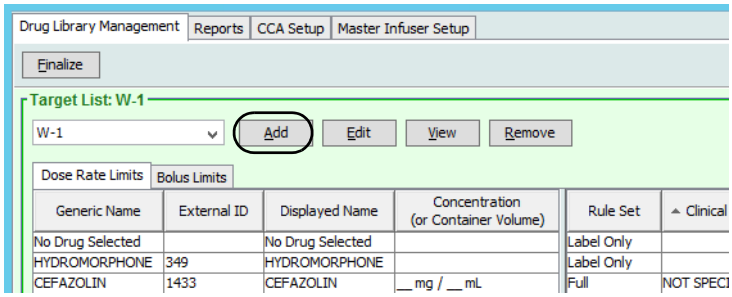
c. Select the Bolus Dose Rate Limits from the drop-down list and enter the desired values for Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit.

d. Click **Save & Close**.

Note: 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 Center.

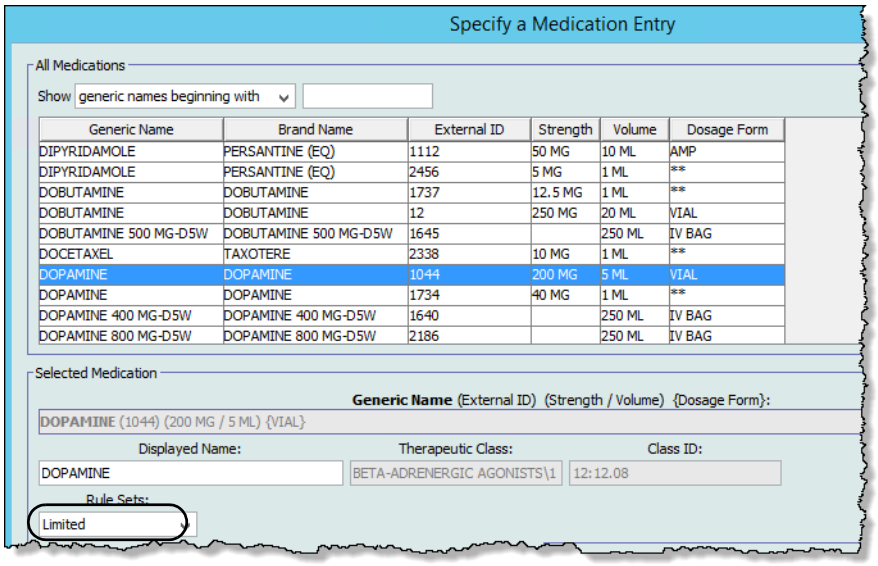
To add a medication entry with a Limited rule set in a CCA:

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



3. Select the Generic Name of a medication.

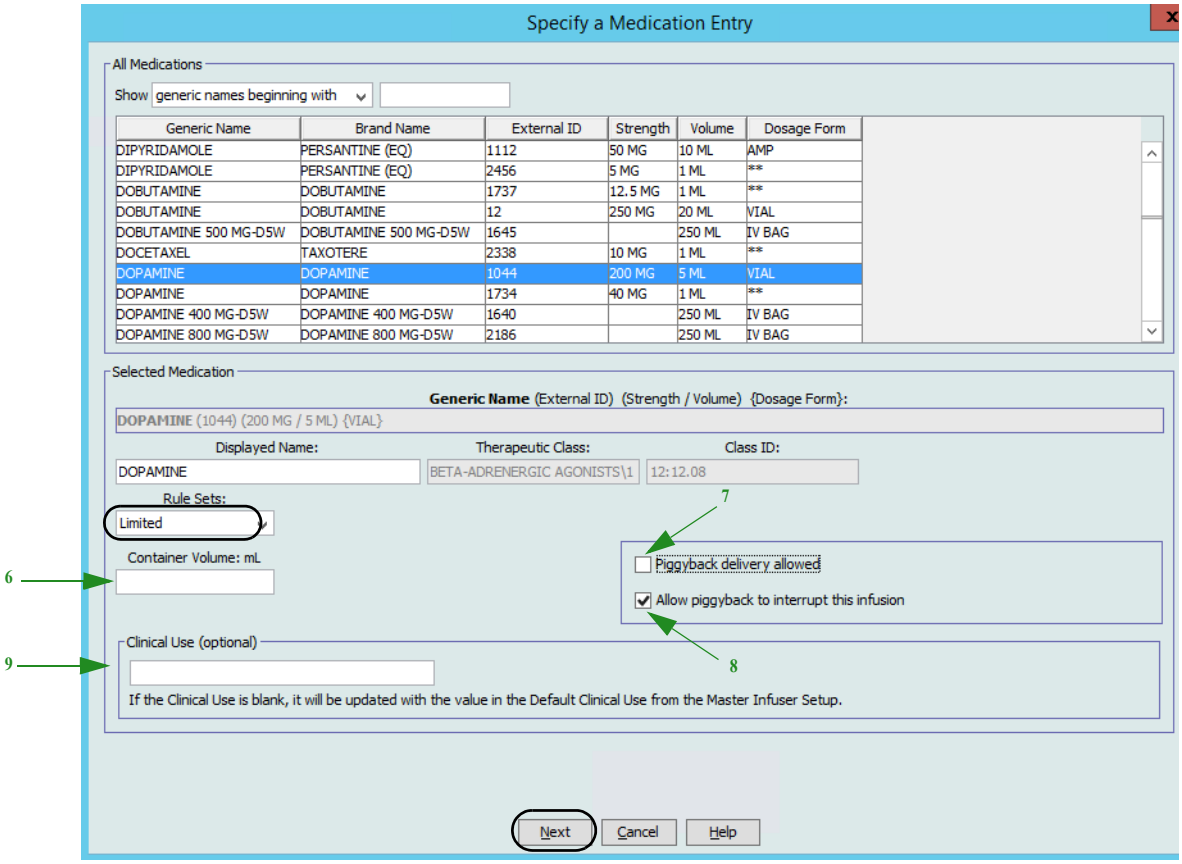
Note: Selecting a generic name from the list automatically populates the **Displayed Name**, **External ID**, **Therapeutic Class**, and **Class ID** fields.



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.

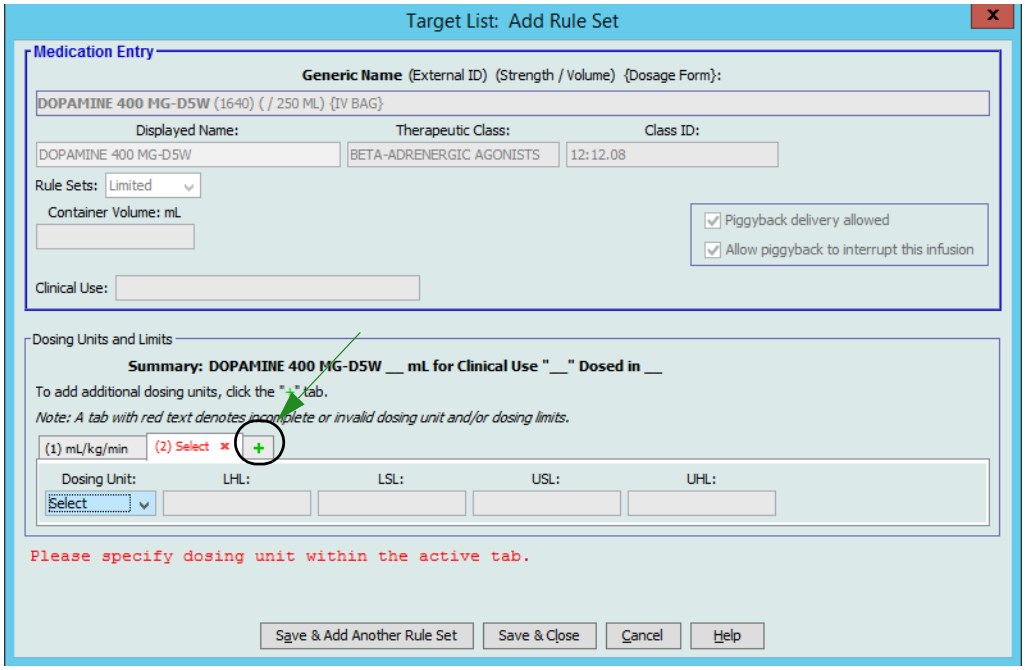


10. Click **Next**.

Note: 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 Center.

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.

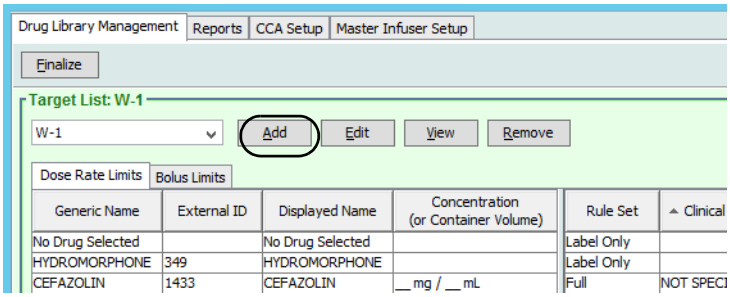
13. Click **Save & Add Another Rule Set** or **Save & Close** to add the medication entry to the CCA.

    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 136.

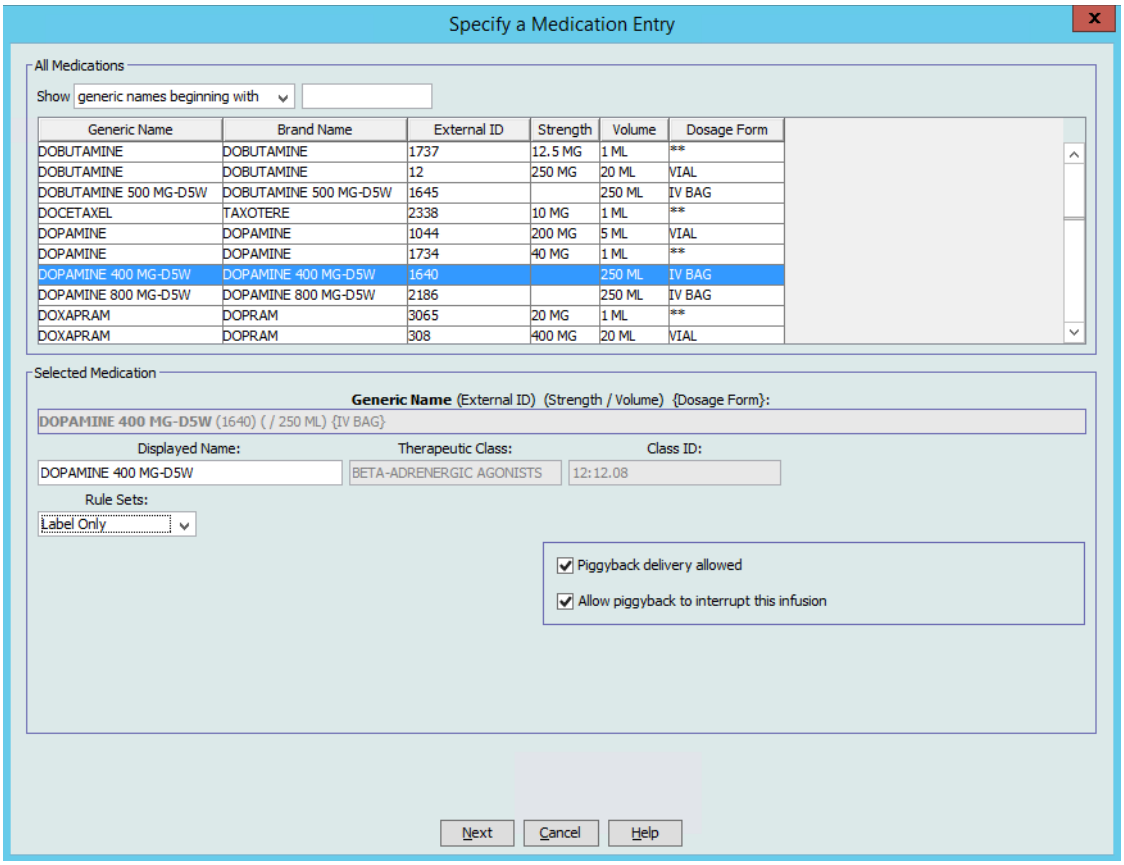
To add a Label Only rule set medication entry in a CCA:

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



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.



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: 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 Center.

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.

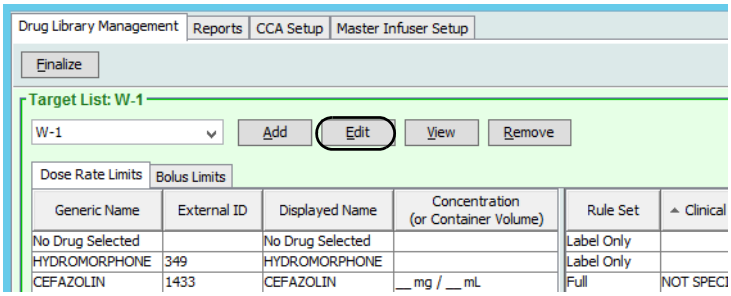
   or

   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 136.

Note: 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 Center.

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.

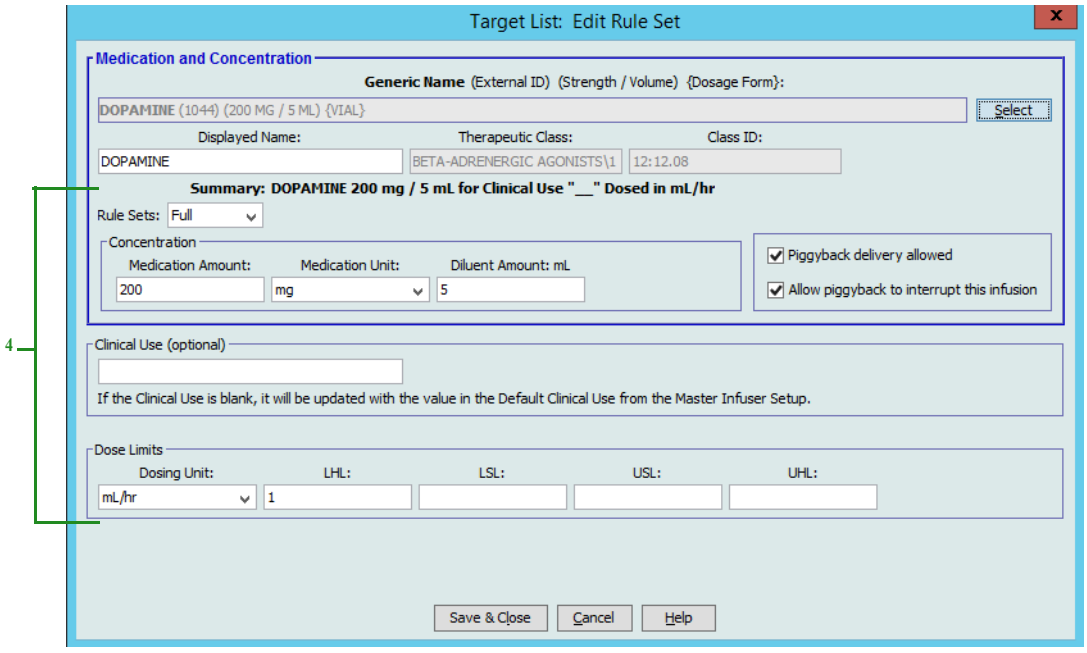


2. From the Target List, select the medication entry you want to edit.
3. Click **Edit**.

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.



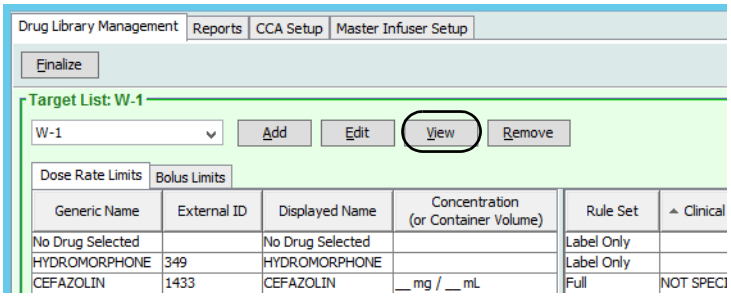
5. Click **Save & Close** to save changes.

Note: 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 Center.

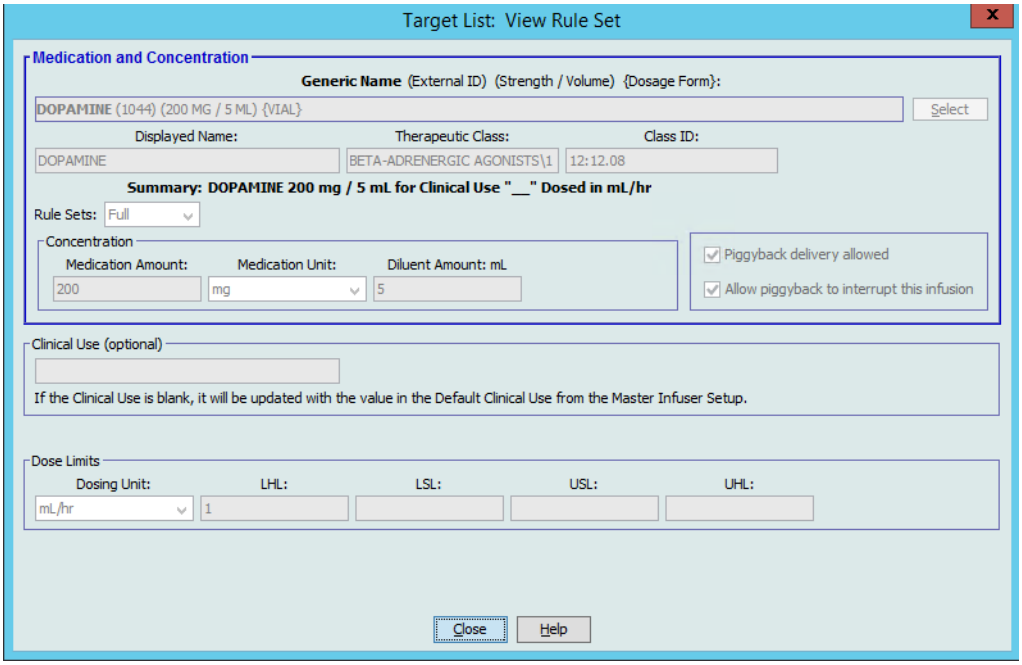
Note: If the medication entry that is edited is assigned to only one CCA, the medication entry will also be updated with the same change in the Master Drug Formulary. If the medication entry that is edited is assigned to more than one CCA, a new medication entry will be created in the Master Drug Formulary.

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.



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

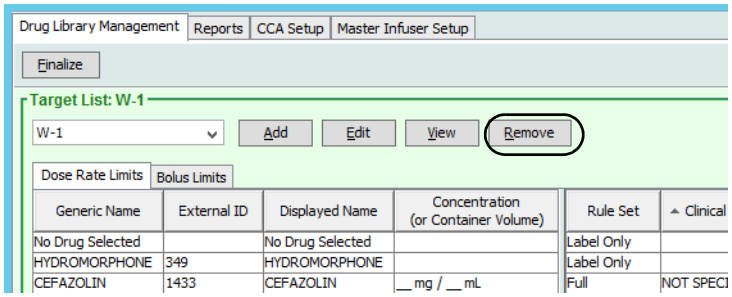


4. Click **Close** to exit the screen.

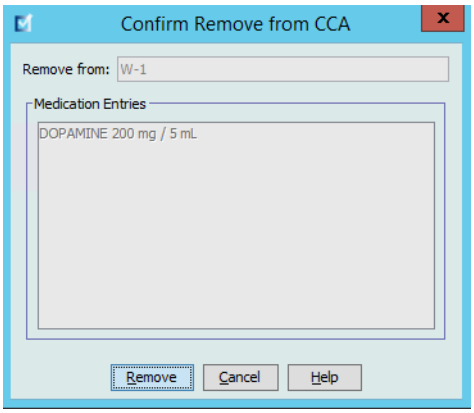
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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**.

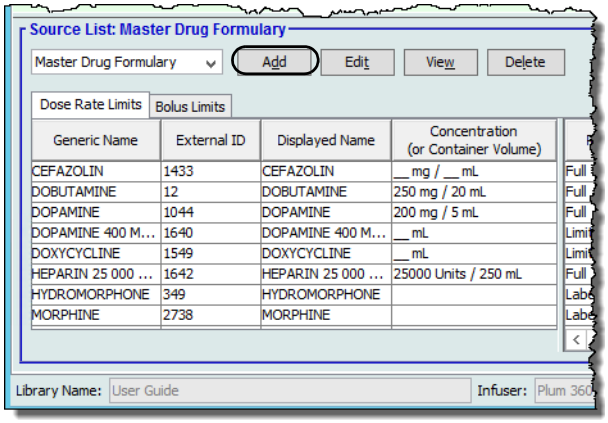
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.

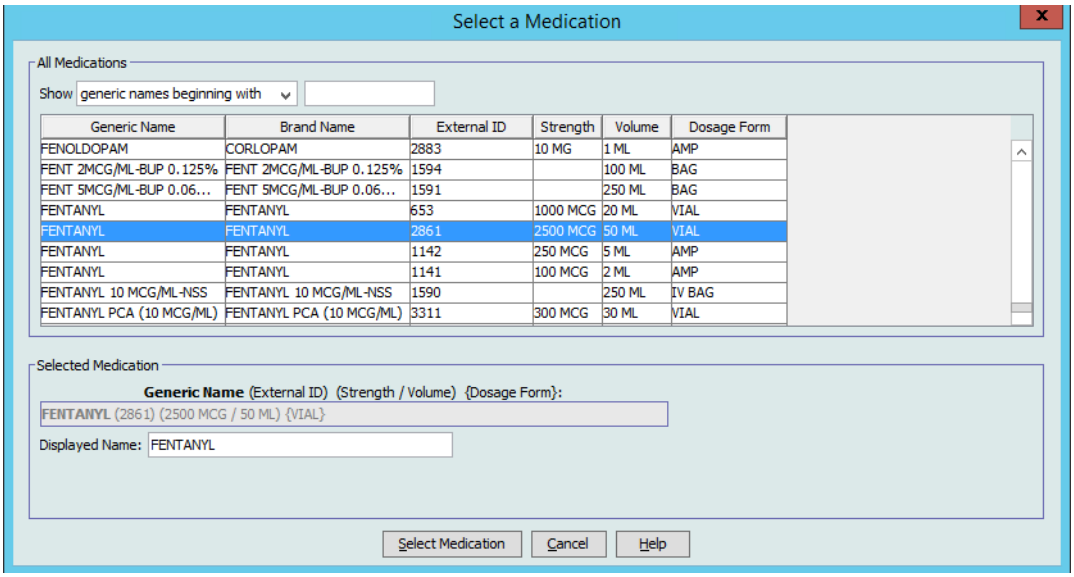
To add a medication entry with a Full rule set to the Master Drug Formulary:

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.



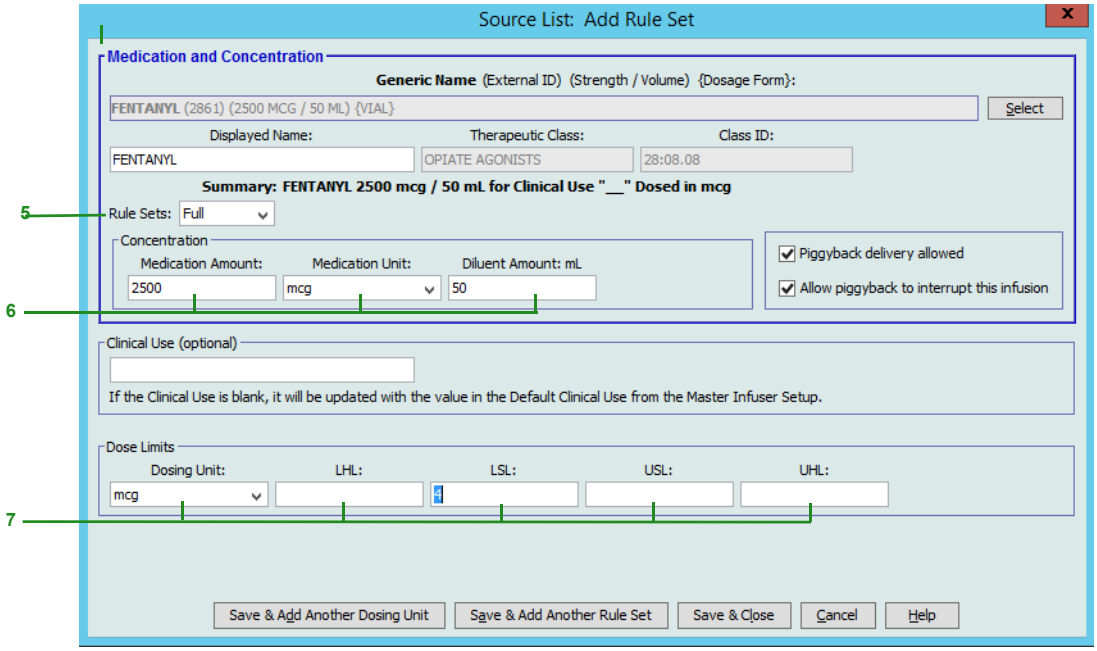
4. Click **Select Medication**.

Note: 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 Center.

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.)

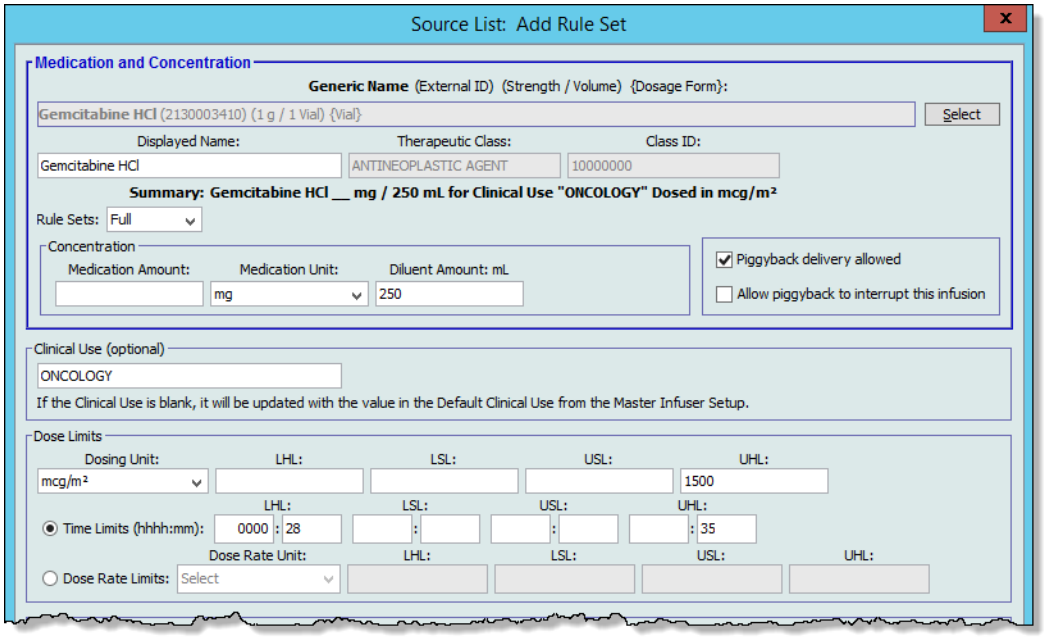
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.

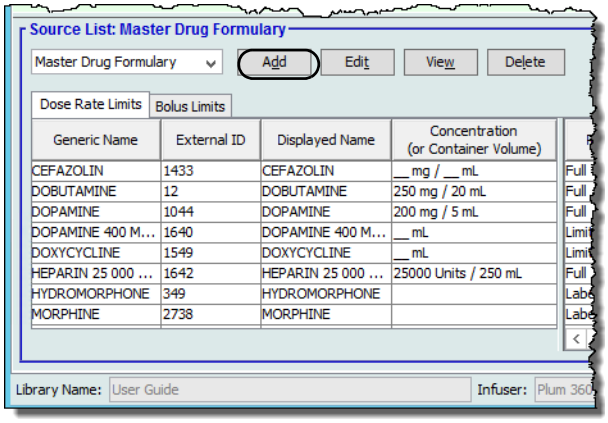
If you use Dose Rate Limits, use the drop-down to select a Dose Rate Unit and then specify at least one value for soft or hard limits.

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.

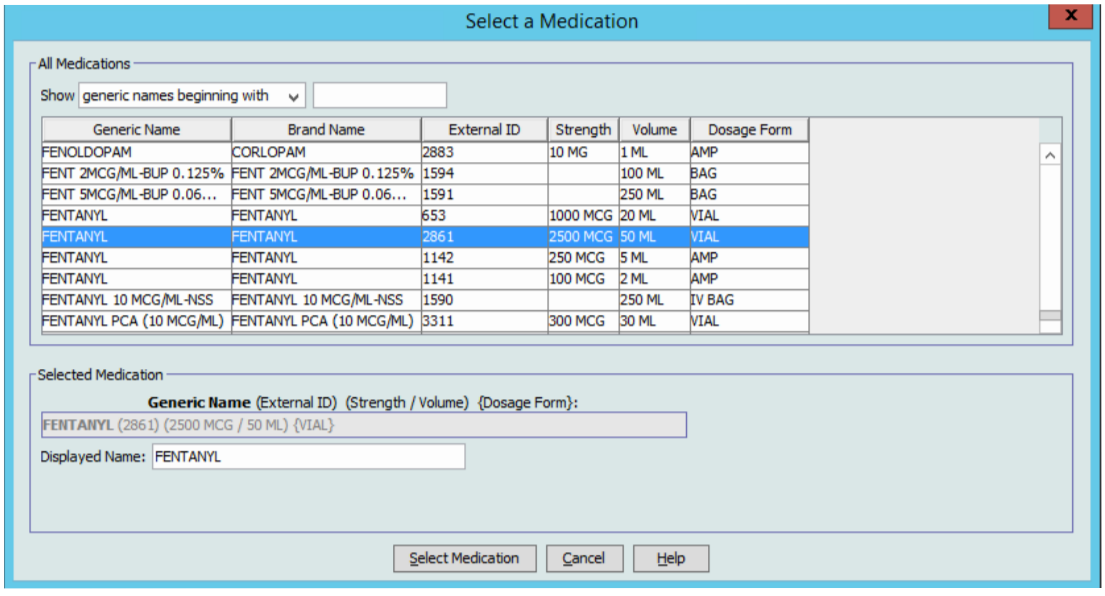
To add a Limited rule set medication entry to the Master Drug Formulary:

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



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.



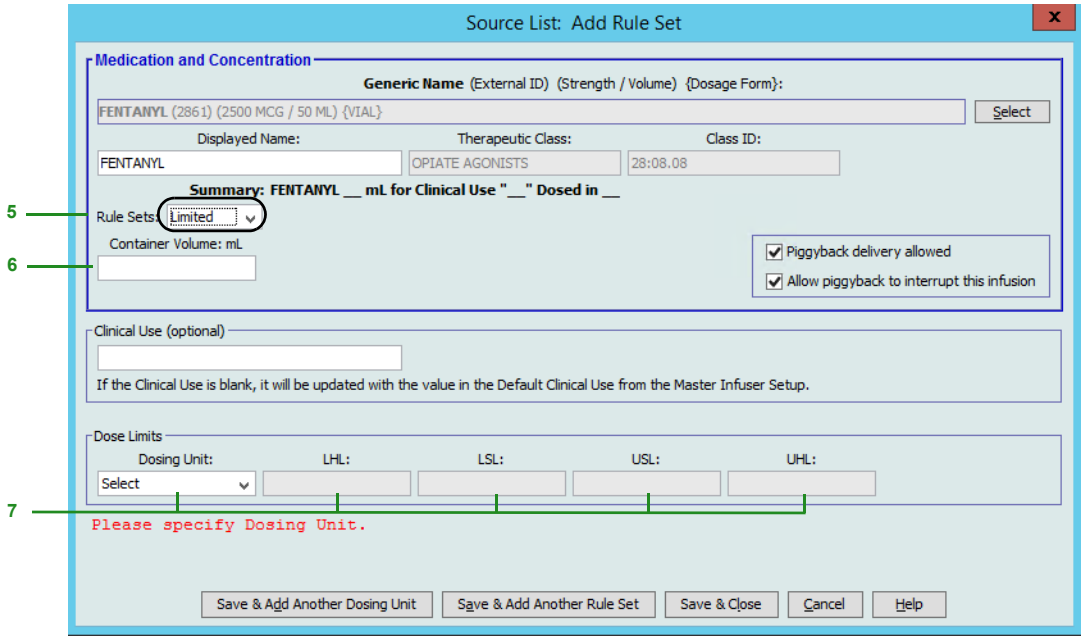
4. Click **Select Medication**.

Note: The **Displayed Name** field cannot be left blank. The maximum number of characters in a 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: 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 Center.

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**.

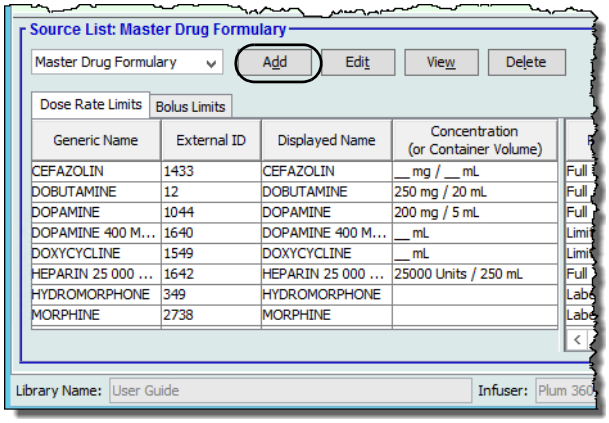
   or

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 136.

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

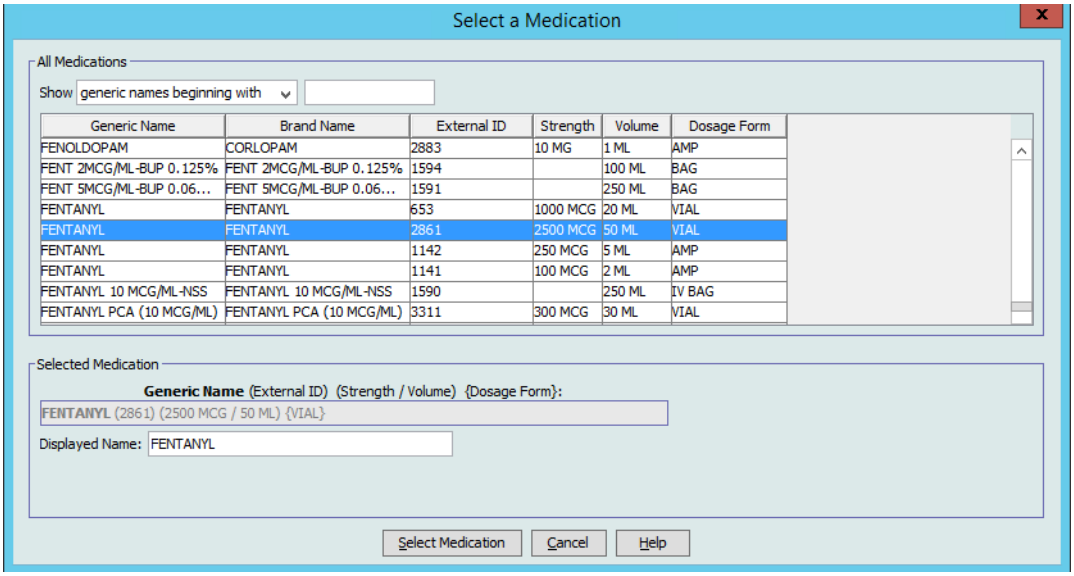
To add a Label Only medication entry to the Master Drug Formulary:

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



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

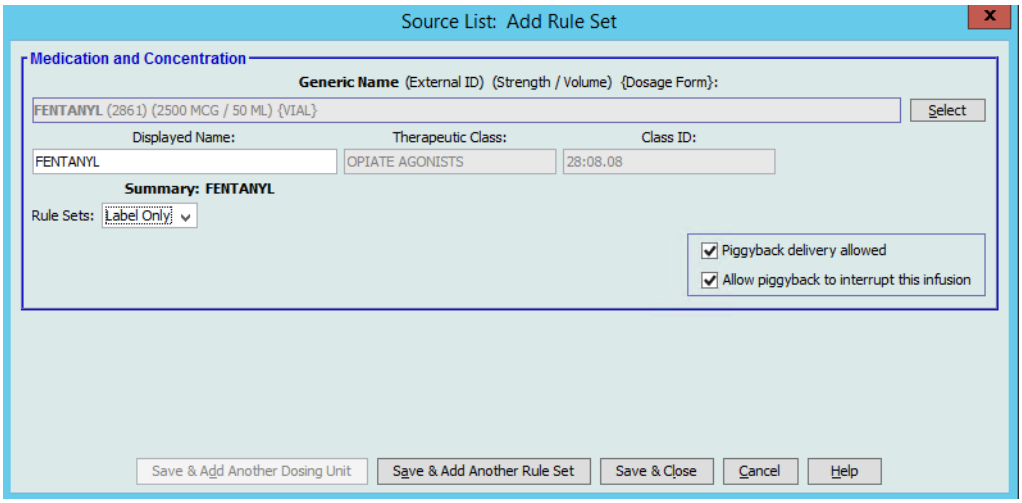
Note: Selecting a **Generic Name** from the drop-down list automatically populates the **Displayed Name**, **External ID, Therapeutic Class**, and **Class ID** fields.



Note: 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 Center.

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.

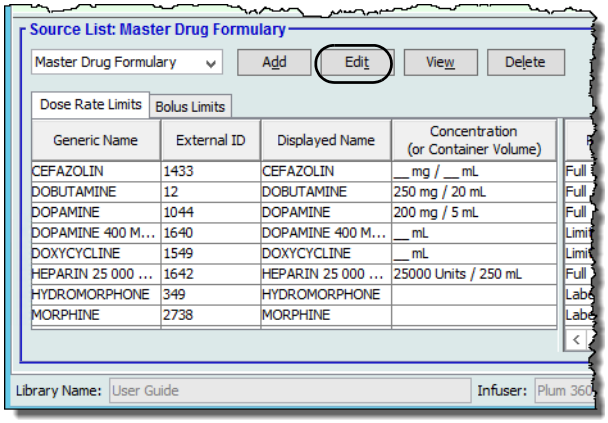
   or

   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 136.

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:

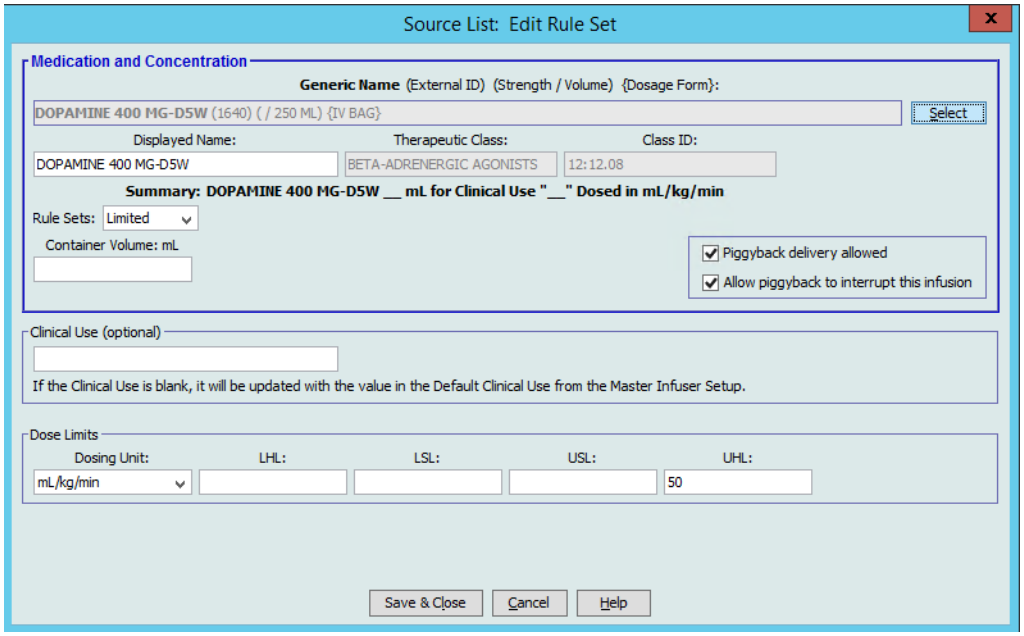
1. Select **Master Drug Formulary** as the Source List.



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.



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

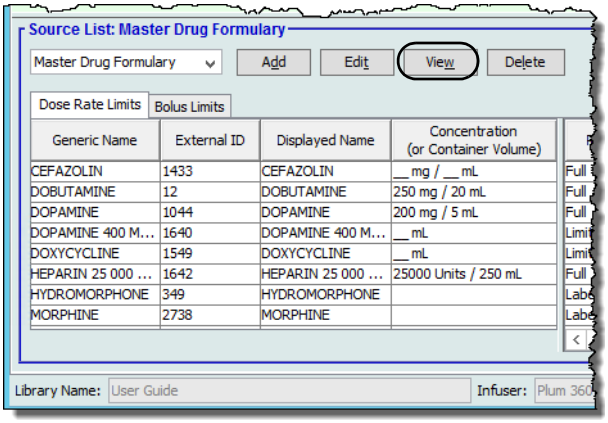
Important: Changing the dosing unit or medication unit will erase all previously entered limits.

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.

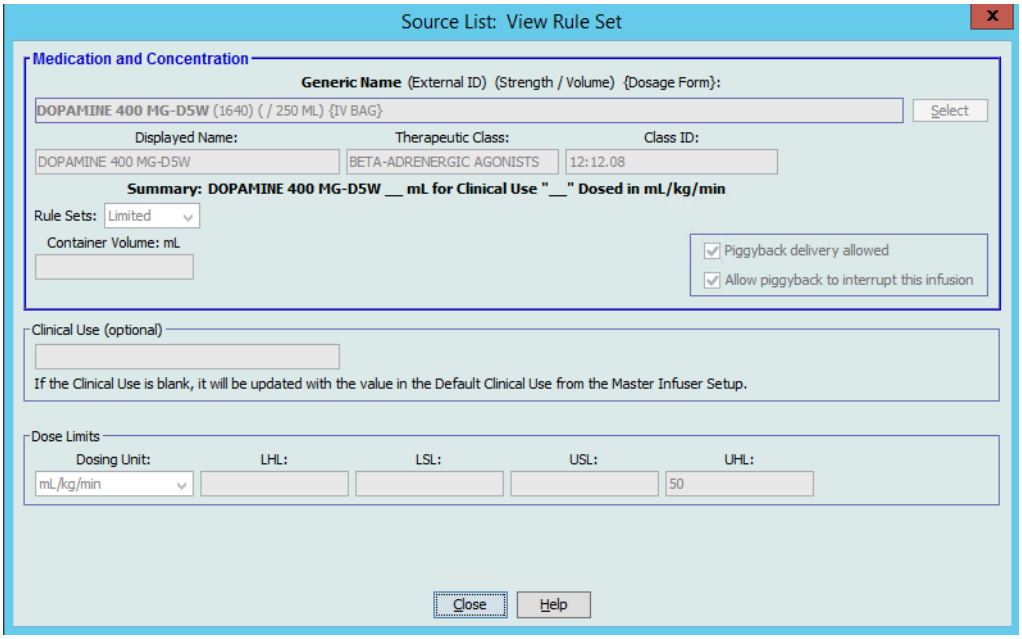
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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**.

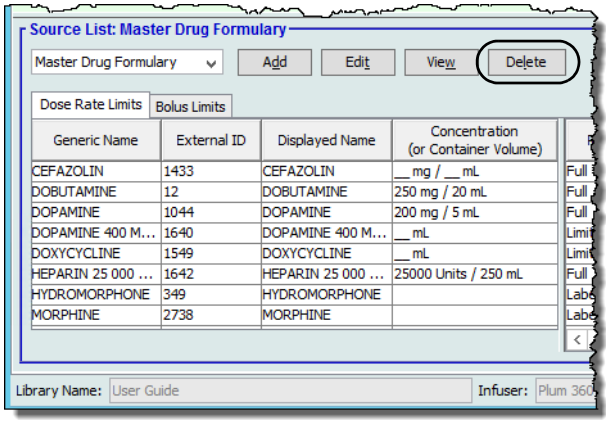


4. Click **Close** to exit the screen.

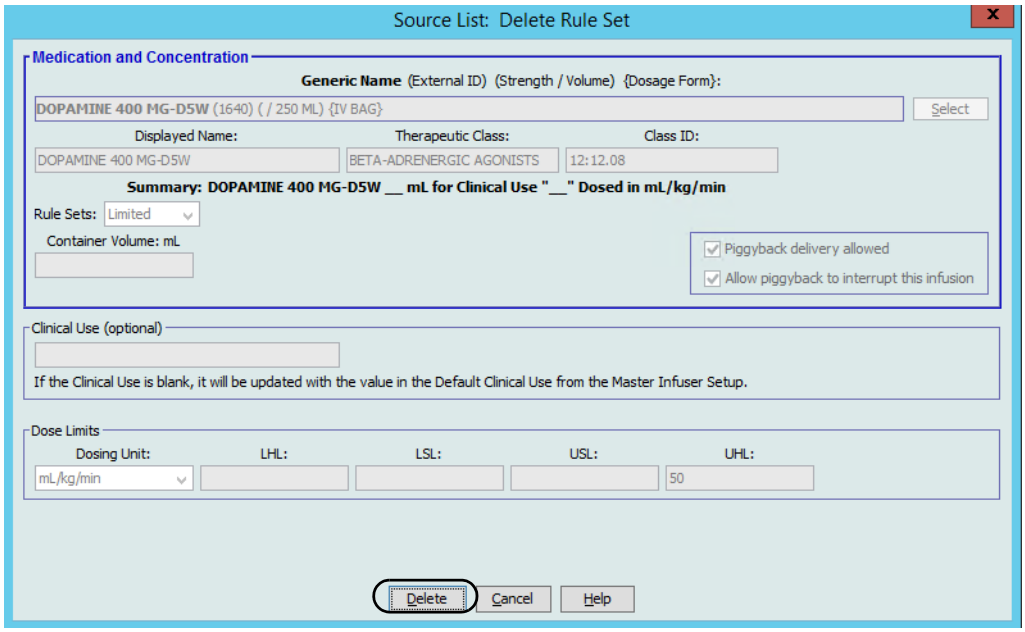
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

To delete a medication in the Master Drug Formulary:

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



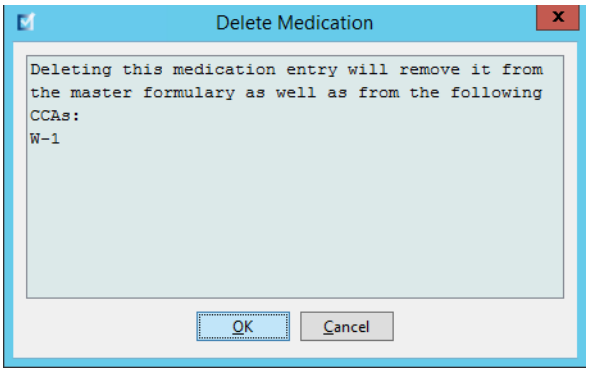
2. From the Source List, select the medication entry you want to delete.



3. Click **Delete**.

Note: 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 Center.

The following pop-up will display only if the medication entry is assigned to one or more CCA.



4. Click **OK**.

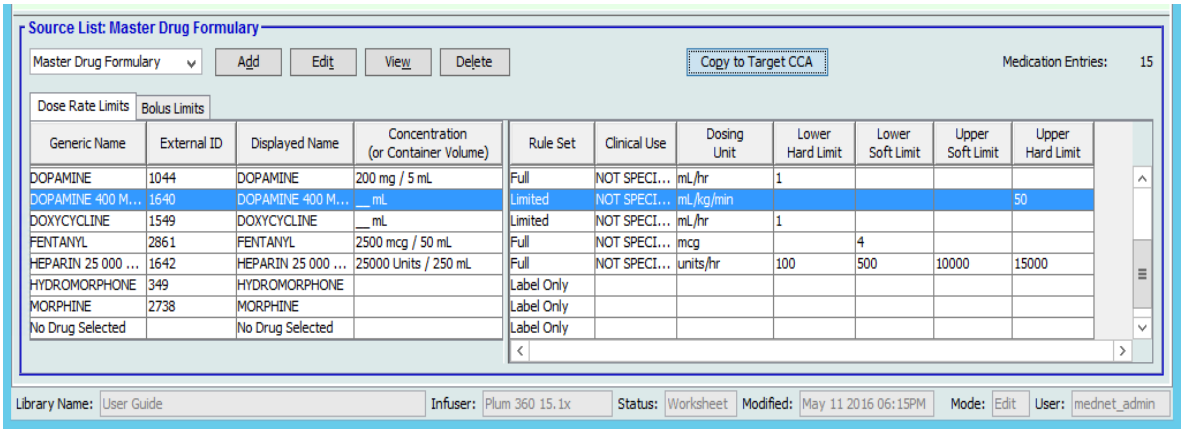
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

To copy to Target CCA:

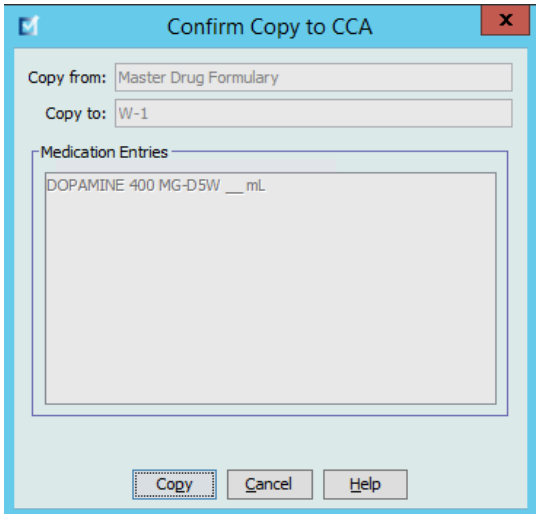
1. Select a medication entry from the Master Drug Formulary.

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**.



3. Click **Copy** on the **Confirm Copy to CCA** pop-up.



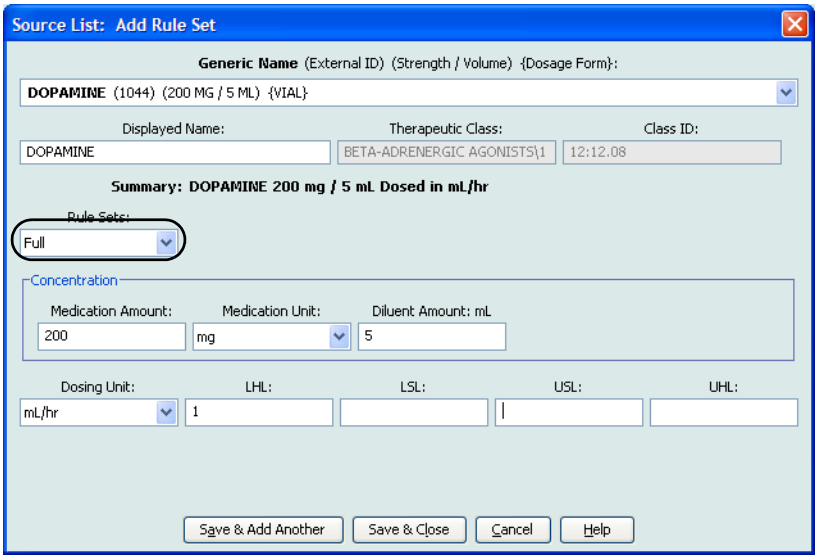
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.

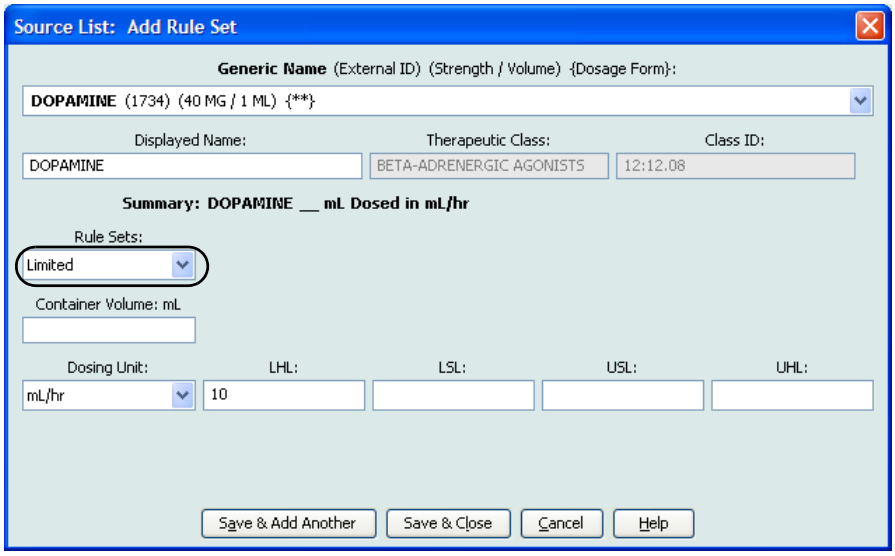


Leaving the medication or diluent amounts blank allows the clinician to enter a non-standard concentration at the time of programming. Full rule sets defined with a partial concentration will require the clinician to enter the concentration values when the dosing units are not mL/hr. When the dosing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

Note: 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 Center.

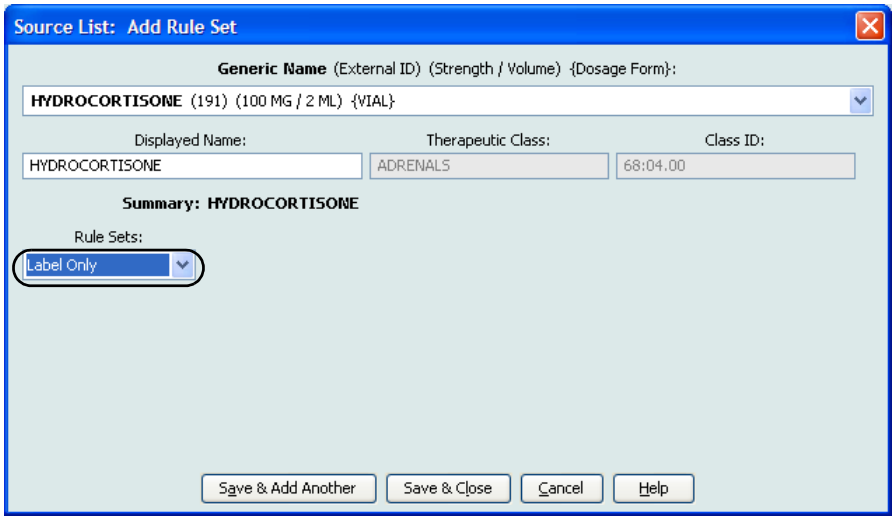
Limited Rule Set

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.



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.



Note: 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 Center.

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:

Lower Hard Limit (LHL) < Lower Soft Limit (LSL) <= Upper Soft Limit (USL) < 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: 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 Center.

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

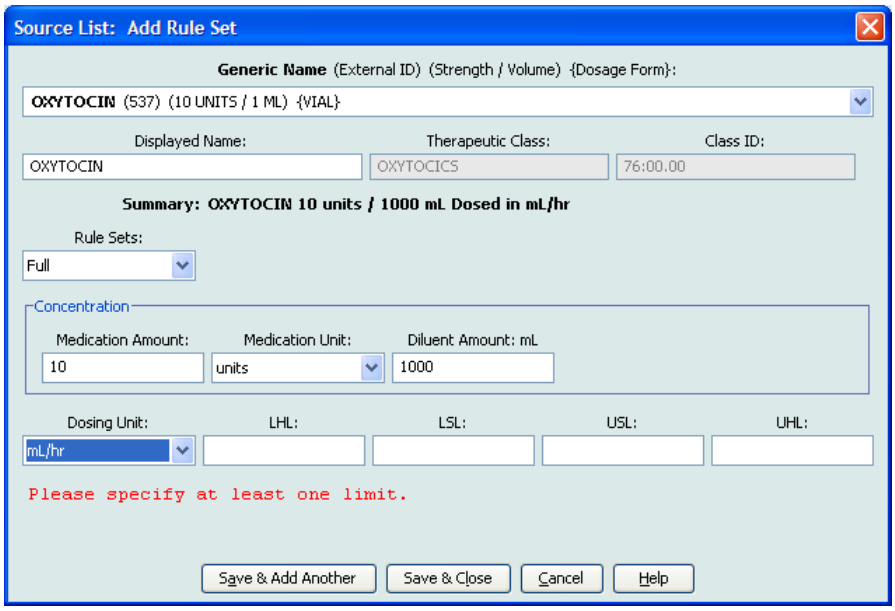
The ICU Medical MedNet Meds software uses the following conventions for Plum A+ medication entries:

- 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.

Note: 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 Center.

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.



Note: 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 Center.

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.	• Varies depending on the character width • Cannot be blank **CAUTION:** You cannot use the following characters in the displayed name: comma (,), less than (<), greater than (>), single quotes (‘), double quotes (“), and ampersand (&). **Note:** The display font changes on the Plum A+ infuser for lengthy displayed names.
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: • 0.1–9999 and “Blank” For medication amounts in units: • 0.1–99999999 and “Blank”
Medication Unit	Allows you to select the unit of measure for your medication amount.	mcg, mg, grams, mEq, million units, mmol and units

Note: 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 Center.

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.	• 0.1–9999 and “Blank”
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.	The units for the soft and hard limits are the same as the dosing units selected in the medication rule set. 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: • 0.001–999* For mL/hr, mUn/min, units/min, units/hr, units/kg/hr, units/kg/min: • 0.1–999
* Some infusers support a range of 100-9999. 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

Note: 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 Center.

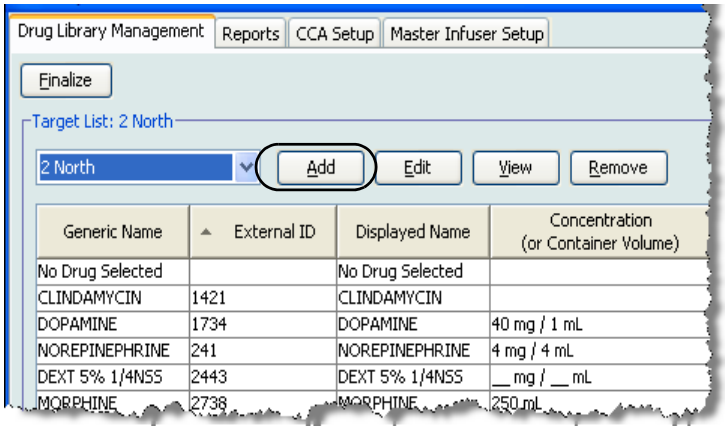
Working with CCA Medication Entries (Plum A+)

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**.

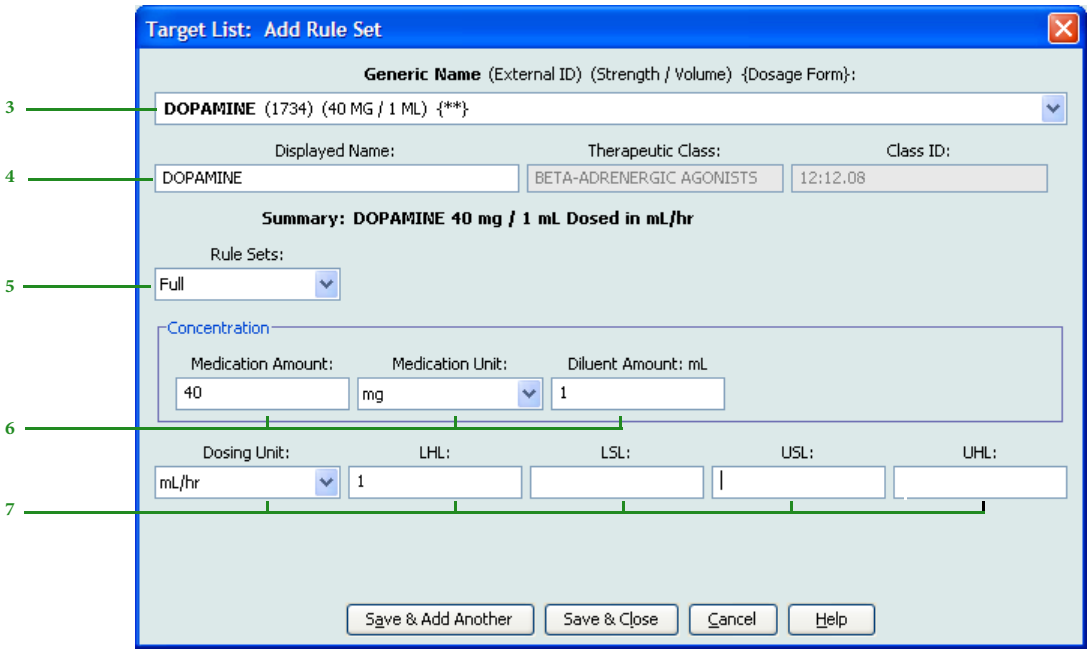
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.

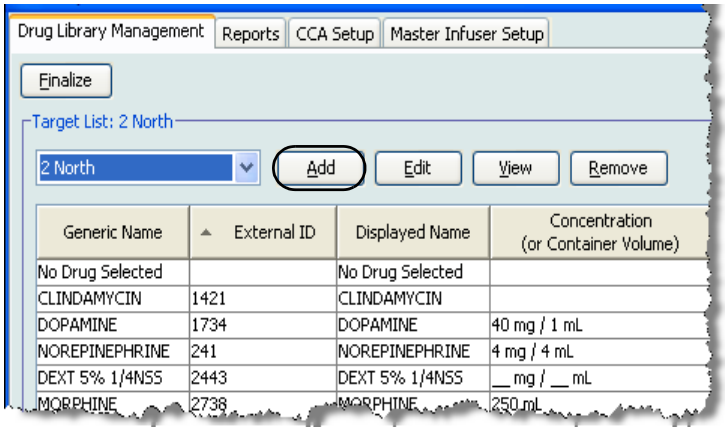
Note: If the desired generic name is not in the **Generic Name** drop-down list (or if no generic names appear in the list), you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the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



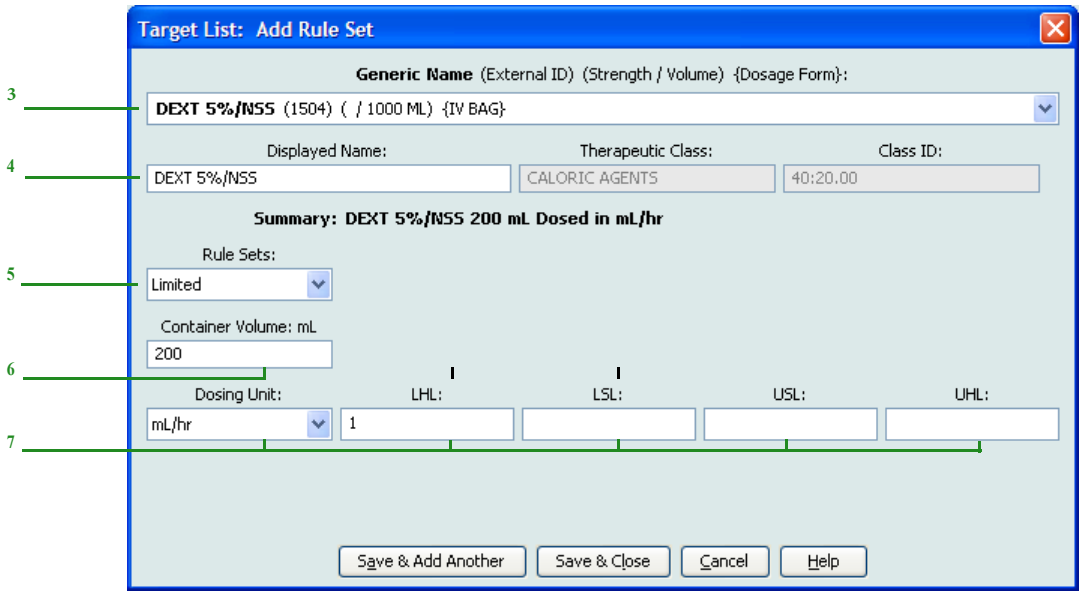
2. From the Target List, click **Add**.
3. Select the Generic Name for the medication entry.

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.

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.

Note: 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 Center.

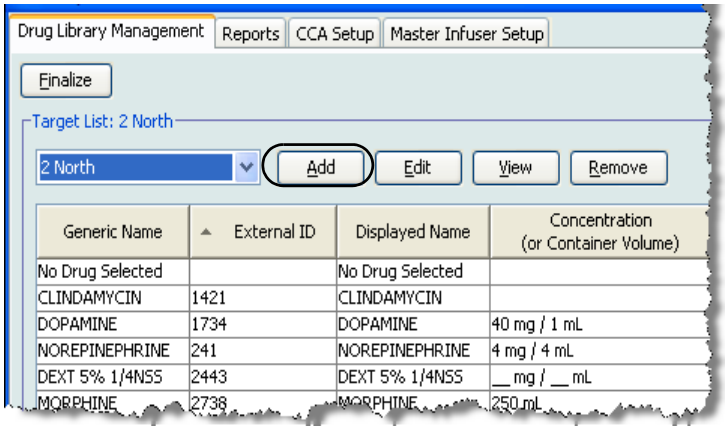


4. The **Displayed Name** can now be changed as desired; for example, to accommodate Tall Man lettering or another unique name.
5. Select **Limited** from the **Rule Sets** drop-down list.
6. Enter the container volume amount (optional).
7. Select mL/hr and enter the values for soft and hard limits. (You must specify at least one limit.)
8. Click **Save & Add Another** or **Save & Close** to add the medication entry to the CCA.

Note: 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 Center.

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

1. Select the desired CCA as the Target List.



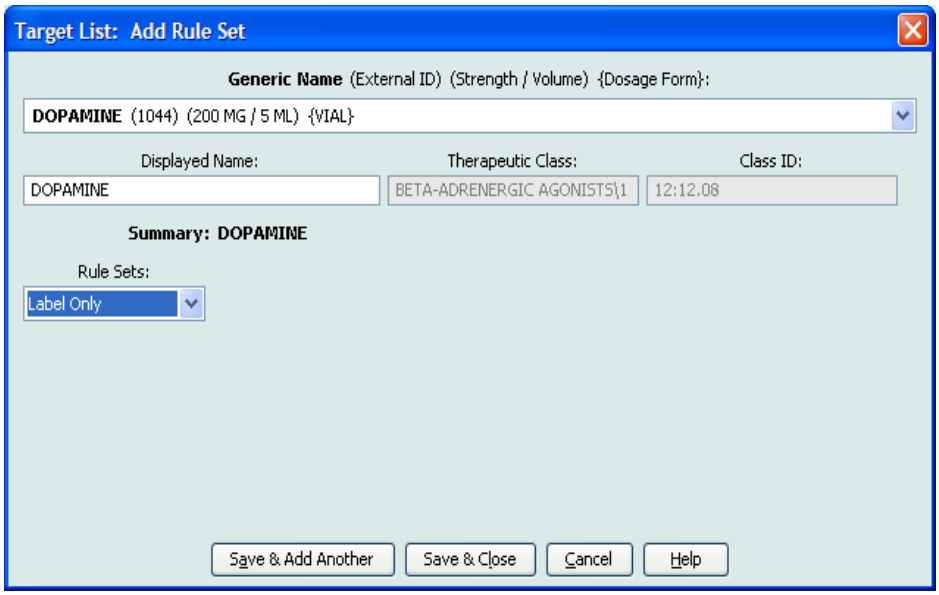
2. From the Target List, click **Add**.
3. Select the generic name for the medication entry from the drop-down list.

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.

Note: 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 Center.

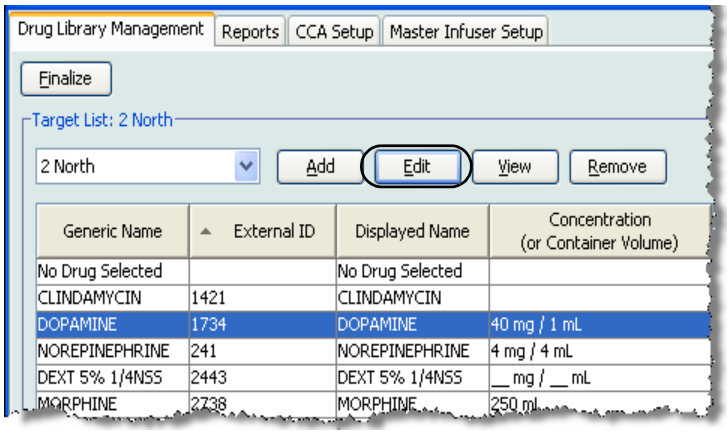


4. The **Displayed Name** can now be changed as desired, for example, to accommodate Tall Man lettering or another unique name.
5. Select **Label Only** from the **Rule Sets** drop-down list.
6. Click **Save & Add Another** or **Save & Close** to add the medication entry to the CCA.

Note: 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 Center.

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.

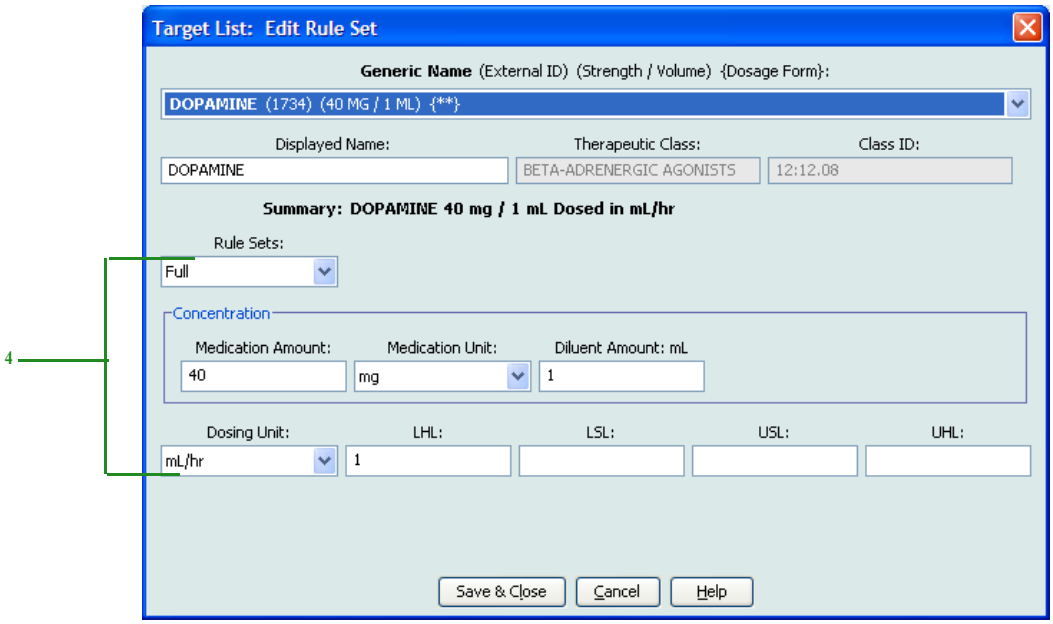


2. From the Target List, select the medication entry you want to edit.
3. Click **Edit**.

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.



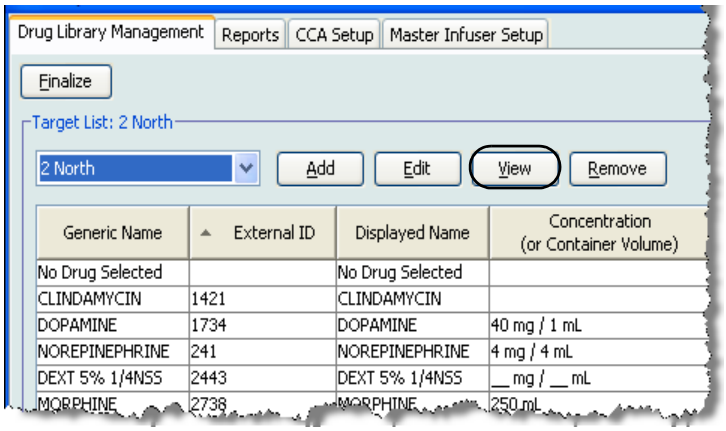
5. Click **Save & Close** to save changes.

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.

Note: 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 Center.

To view a medication entry in a CCA:

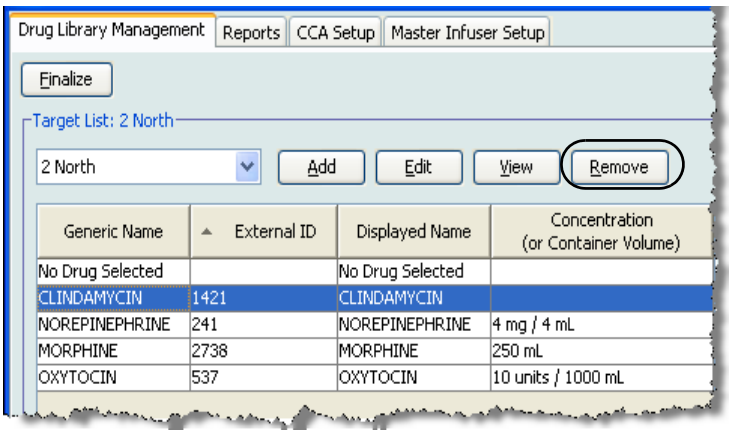
1. Select the CCA containing the medication entry you want to view from the Target List drop-down.



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

To remove a medication entry from a CCA:

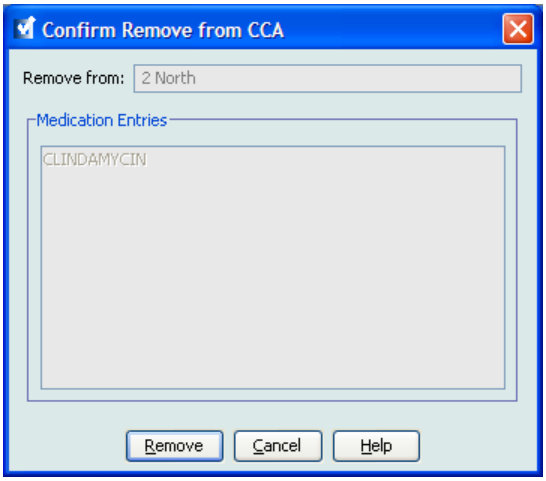
1. Select the CCA containing the medication entry you want to remove from the Target List drop-down.



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

Note: 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 Center.

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



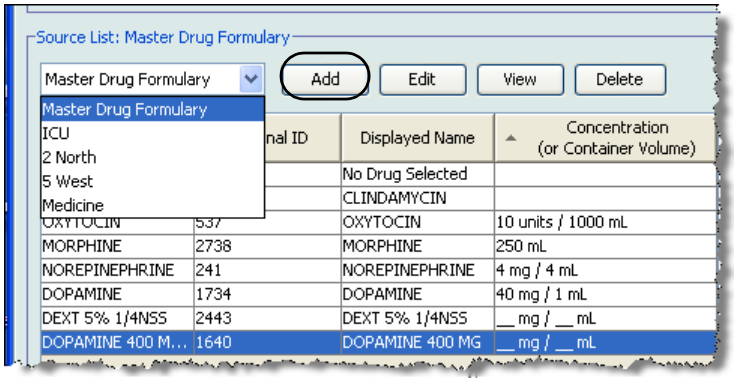
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.



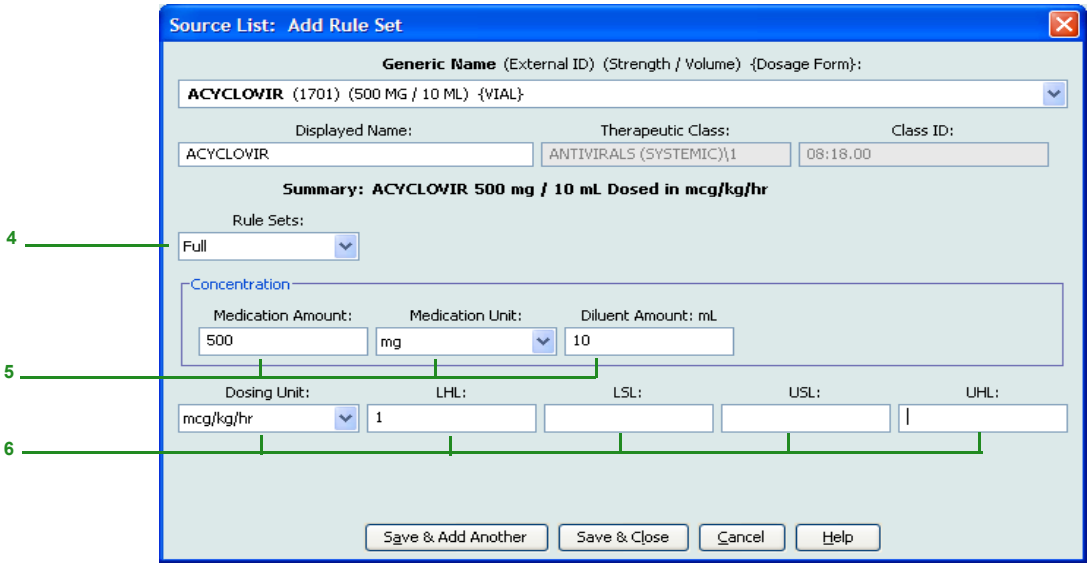
2. From the Source List, click **Add**.
3. Select the Generic Name for the medication entry from the drop-down list.

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.

Note: 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 Center.



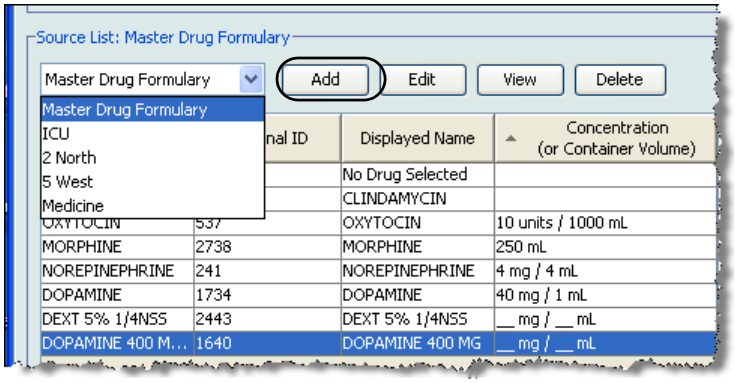
4. Select **Full** (if not already selected) from the **Rule Sets** drop-down list.
5. Select the **Medication Unit** and enter a **Medication Amount** (optional) and **Diluent Amount** (optional).
6. Select the dosing unit and type the values for soft and hard limits. (You must specify at least one 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.

Note: 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 Center.

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

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



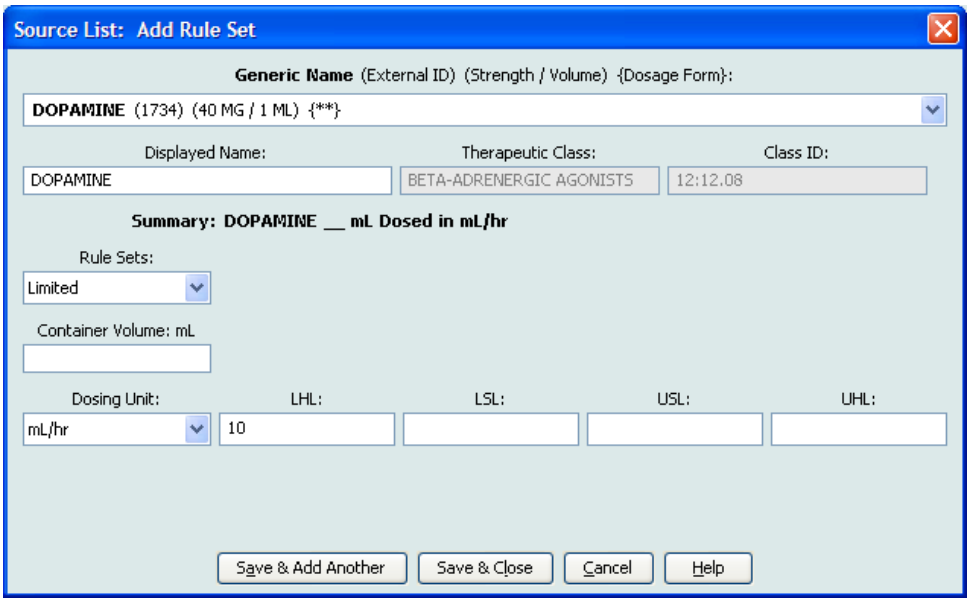
2. From the Source List, click **Add**.
3. Select the Generic Name for the medication entry from the drop-down list.

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

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.

Note: 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 Center.

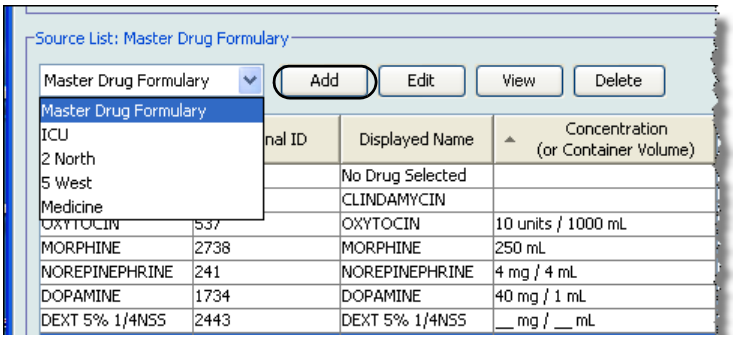


4. Select **Limited** from the **Rule Sets** drop-down list.
5. Type the **Container Volume** amount (optional).
6. Select mL/hr and enter the values for soft and hard limits. (You must specify at least one limit.)
7. Click **Save & Add Another** or **Save & Close** to add the medication entry to the 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.



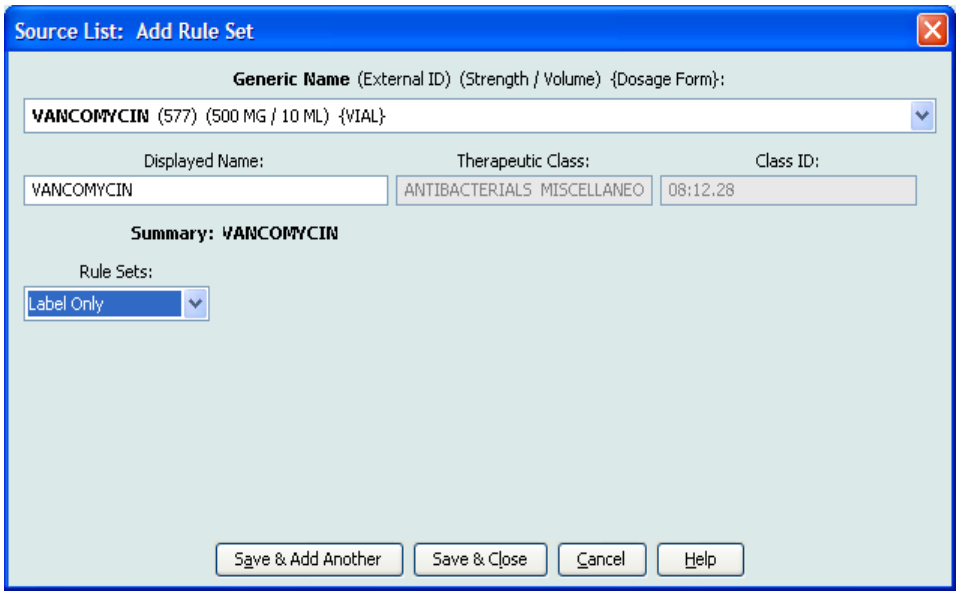
2. From the Source List, click **Add**.
3. Select the Generic Name for the medication entry from the drop-down list.

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

Note: 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 Center.

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.



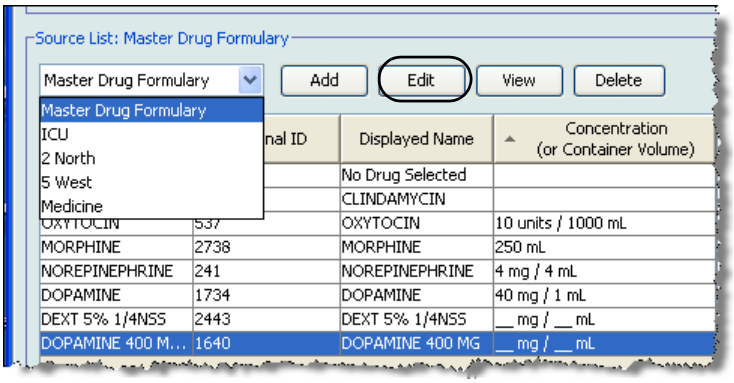
4. Select **Label Only** from the **Rule Sets** drop-down list.
5. Click **Save & Add Another** or **Save & Close** to add the medication entry to the Master Drug Formulary.

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

Note: 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 Center.

To edit a medication entry in the Master Drug Formulary:

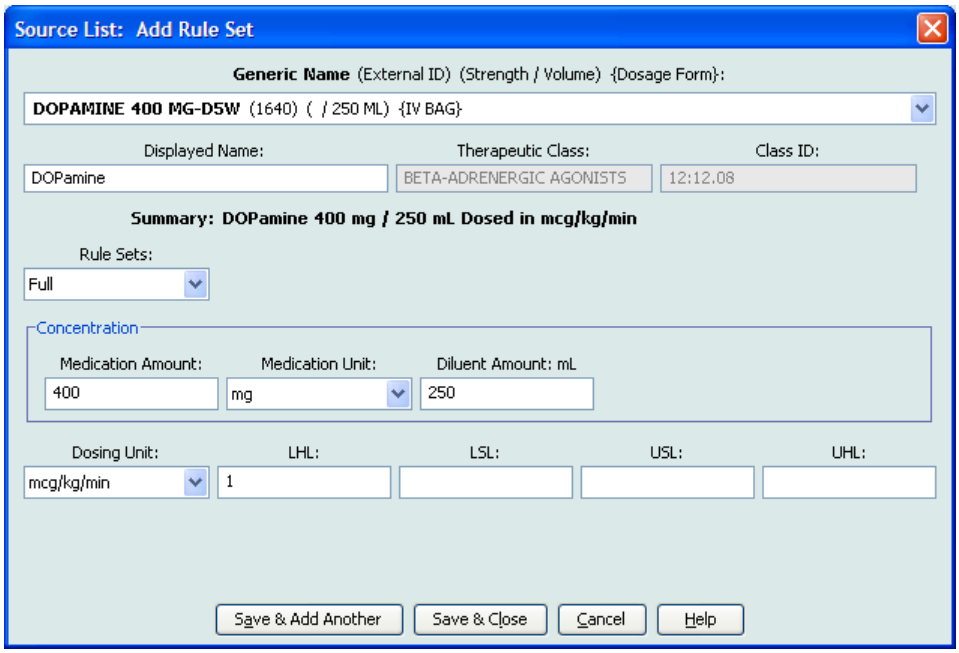
1. Select **Master Drug Formulary** as the Source List.



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.



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

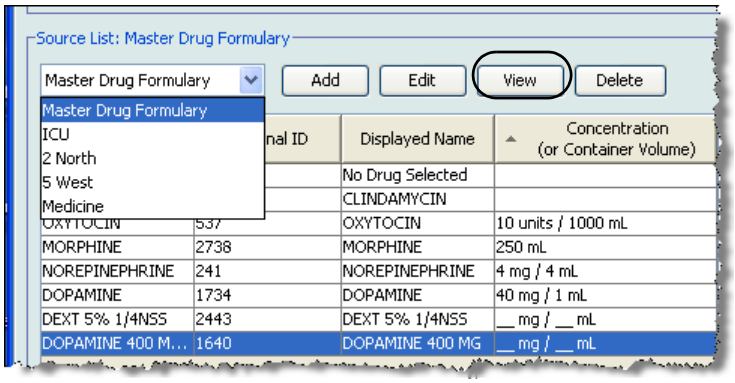
Important: Changing the dosing unit or medication unit will erase all previously entered limits.

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.

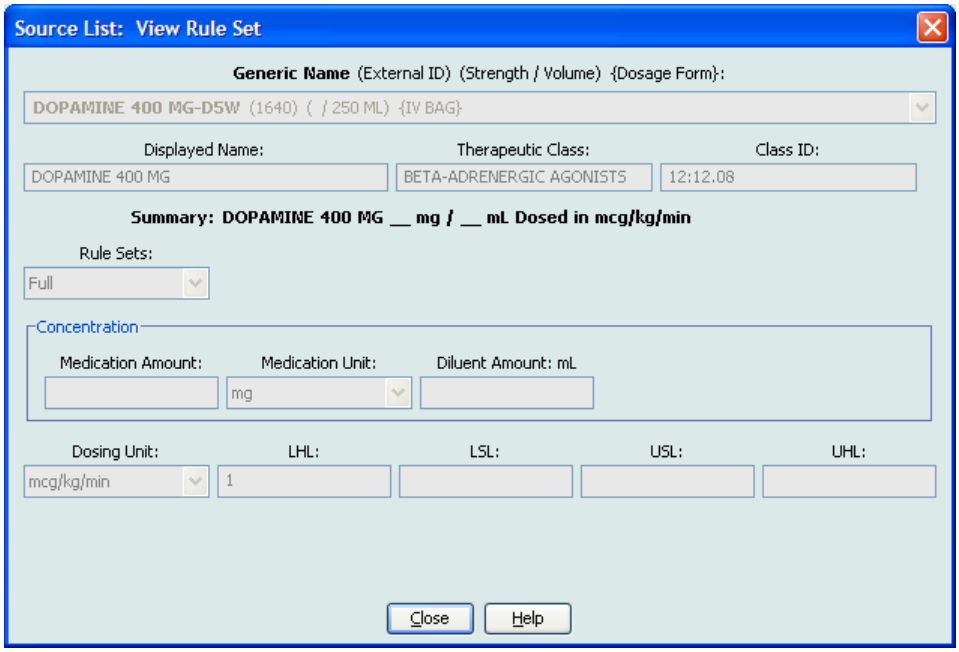
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

To view a medication entry in the Master Drug Formulary:

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



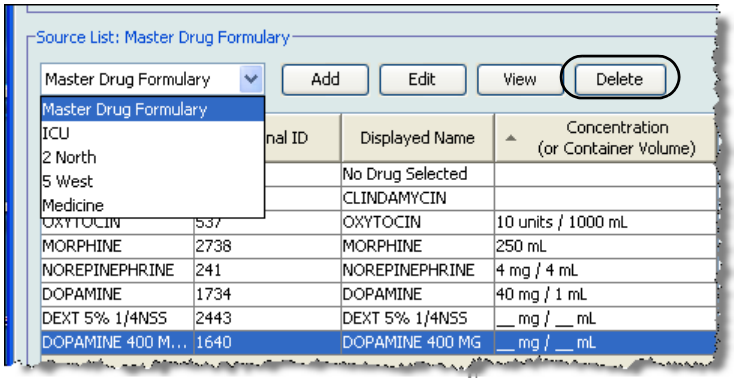
2. From the Source List, select the medication entry you want to view
3. Click **View**.
4. Click **Close** to exit the screen.



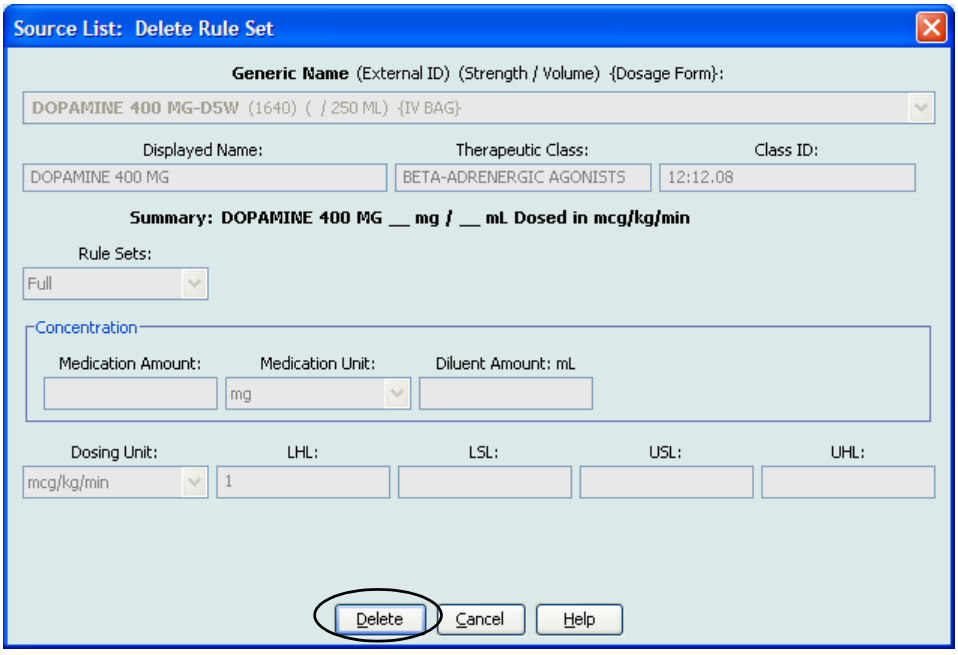
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

To delete a medication in the Master Drug Formulary:

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



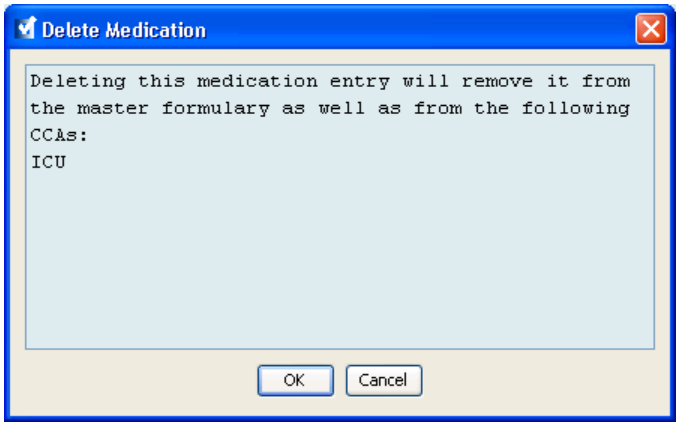
2. From the Source List, select the medication entry you want to delete.



3. Click **Delete**.

Note: 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 Center.

The following pop-up will display only if the medication entry is assigned to one or more CCA.



4. Click **OK**.

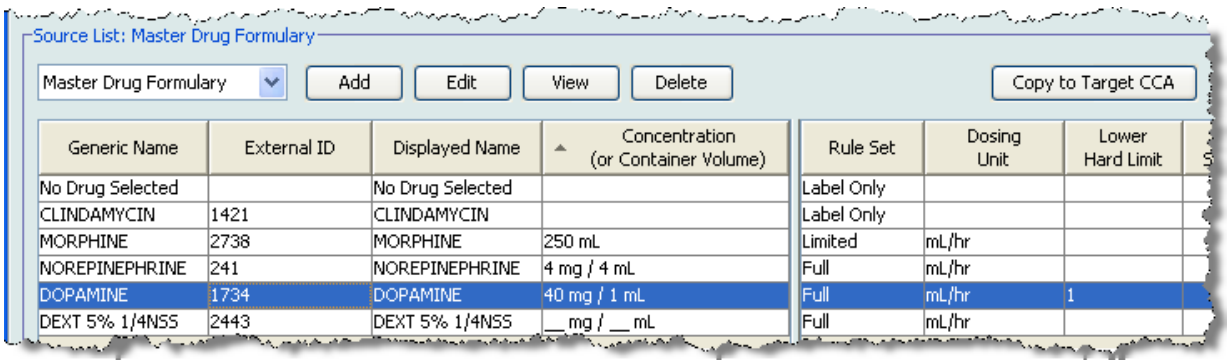
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

To copy to Target CCA:

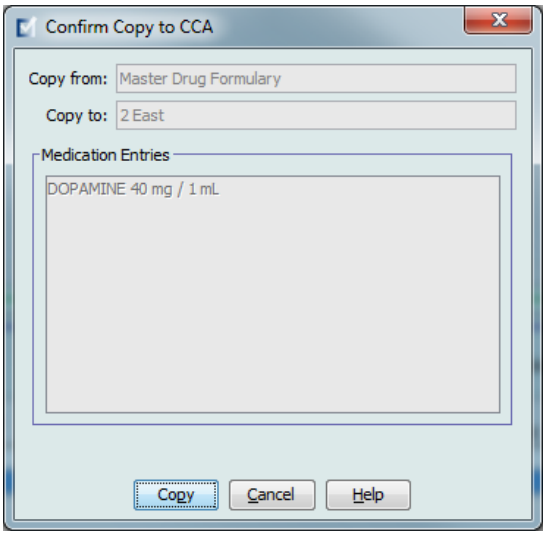
1. Select a medication entry from the Master Drug Formulary.

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**.



3. Click **Copy** on the **Confirm Copy to CCA** pop-up.



Note: 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 Center.

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)

Note: 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 Center.

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:

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 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.

Note: 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 Center.

Medication Entry Rules and Conventions

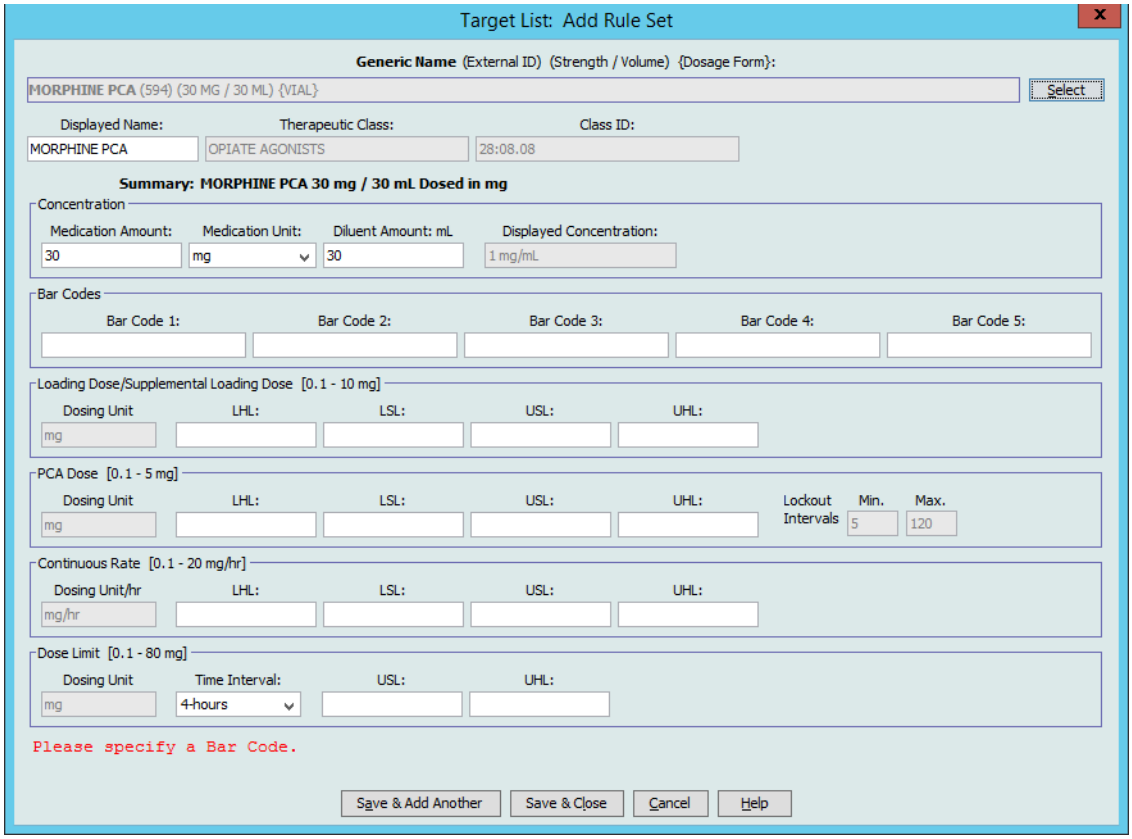
The ICU Medical MedNet Meds software uses the following conventions for the LifeCare PCA medication entries:

- 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.

Note: 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 Center.

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.



Note: 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 Center.

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.	• Varies depending on the character width • Cannot be blank 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.	• For mg: 0.1–999.9 • For mcg: 1–15,000
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.	• Numeric or alphanumeric • Each bar code must be unique. • At least one bar code is required. • The printed bar code length must be less than 4.2 cm (about 16-17 characters in a typical font). • Enter the bar code value without any space or punctuation characters such as parentheses.
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.	• Choices include one (1), four (4), six (6), or twelve (12) hours. • Default time interval = four (4) hours (required).

Note: 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 Center.

Field	Description	Allowable Range
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 limits for loading dose, PCA dose, continuous rate, and dose limit for the selected medication. Upper Soft Limit (USL) and Upper Hard Limit (UHL) entries are optional.	Loading dose -From 0.1 x concentration to 10 x concentration -Not less than 0.1 mg or 1 mcg -Not more than 500 mg or 5000 mcg PCA dose -From 0.1 x concentration to 5 x concentration -Not less than 0.1 mg or 1 mcg -Not more than 250 mg or 2500 mcg Continuous rate -From 0.1 x concentration to 20 x concentration -Not less than 0.1 mg/hr or 1 mcg/hr -Not more than 999.9 mg/hr or 9999 mcg/hr -Not more than 250 mL/hr Dose limit (Upper Soft and Hard Limit only) -From 0.1 x concentration to (20 x concentration x period) -Not less than 0.1 mg or 1 mcg -Not more than 999.9 mg or 9999 mcg -Dose limit period is 1 hour, 4 hours, 6 hours, or 12 hours
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.

Note: 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 Center.

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

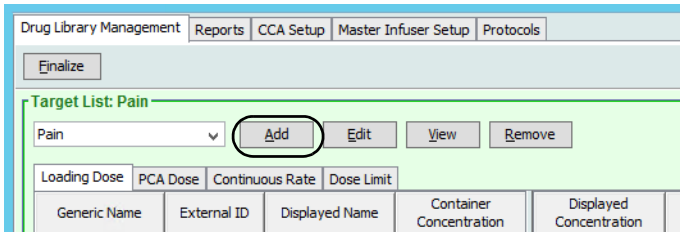
The following section provides step-by-step procedures that will enable you to create and manage medication entries. In this section you will learn to do the following:

- 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 33**.)

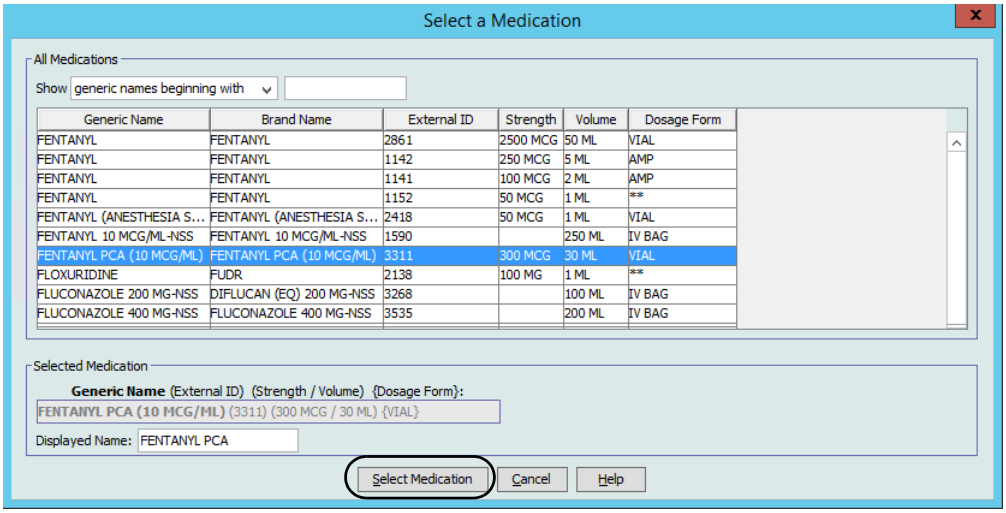
To add a medication entry in a CCA:

1. Select the desired CCA as the Target List.
2. From the Target List, click **Add**.



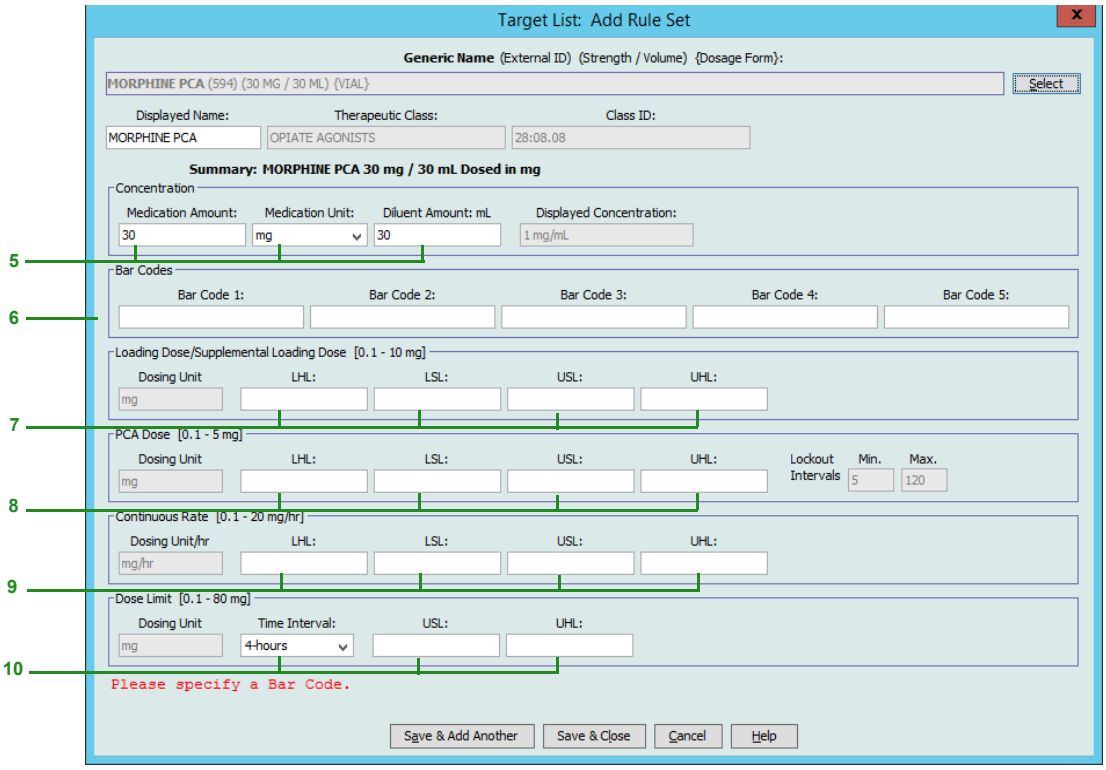
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

3. Highlight a medication from the **Select a Medication** screen.



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: 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.

Note: 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 Center.

5. 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.

6. 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.

7. Enter soft and hard limits for Loading Dose (optional).
8. 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.

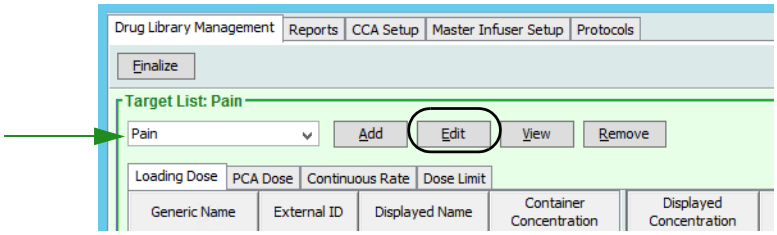
9. Enter soft and hard limits for Continuous Rate (optional).
10. Enter the time interval and upper soft or hard limits for Dose Limit (optional).

Note: When a soft or hard Dose Limit is entered, the clinician MUST always enter a Dose Limit on the infuser during programming.

11. 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.



3. Click **Edit.**

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

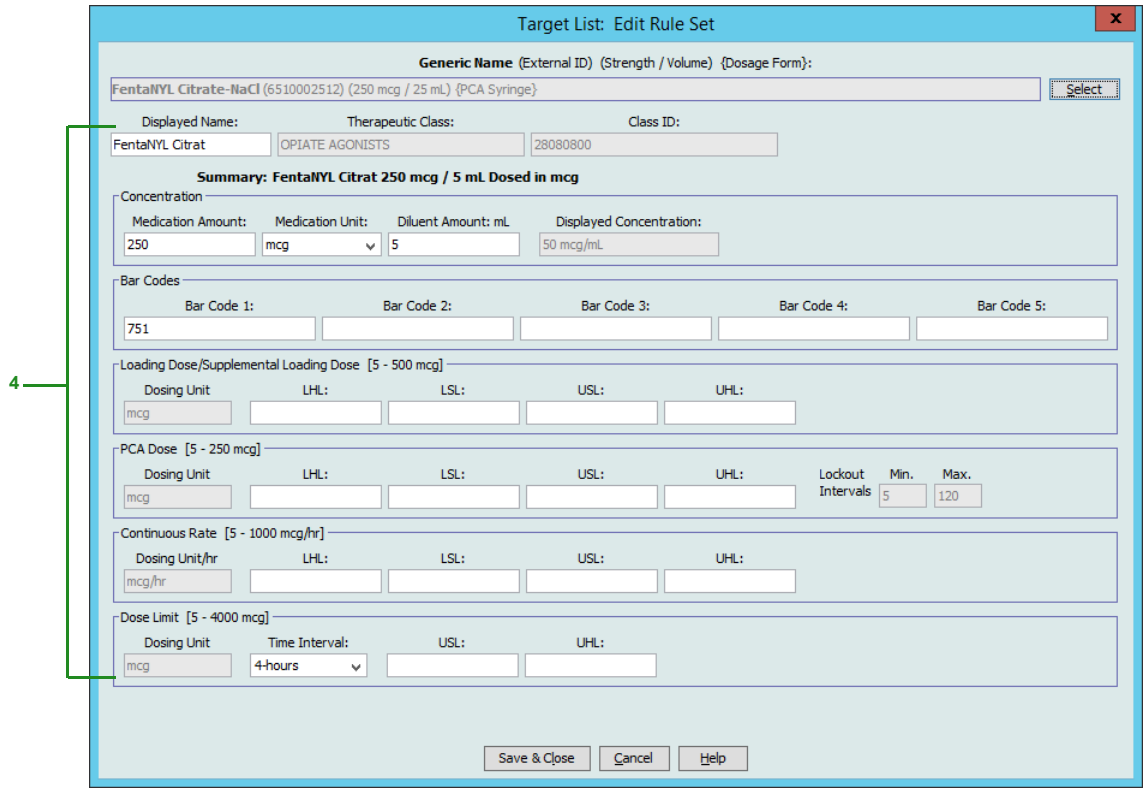
Note: A Medication Rule Set can be edited once a medication is assigned to a protocol without having to delete the protocol. However, if the rule set is being used by one or more protocols; medication, concentration, and time interval information cannot be edited.

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.

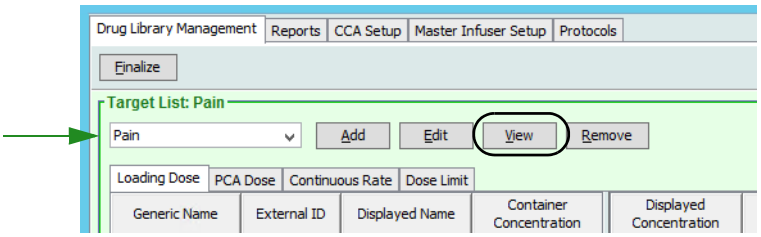
Note: If the medication is assigned to another CCA, a new medication is created in the Master Drug Formulary. If the medication is not assigned to another CCA, the changes are applied to both the medication in the CCA and the medication in the Master Drug Formulary.



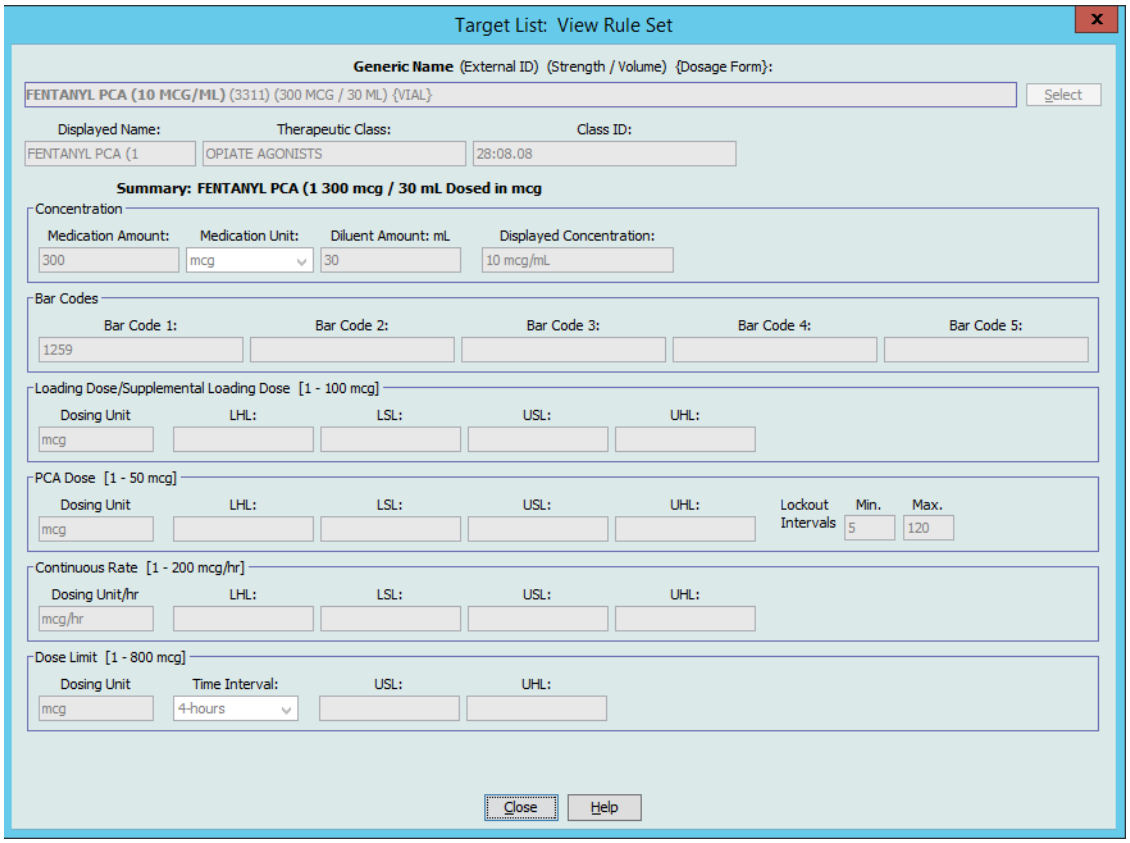
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.



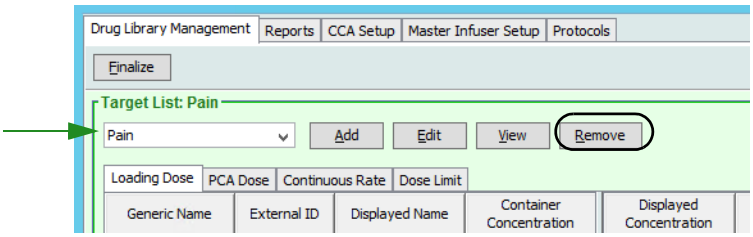
2. Select a medication.
3. Click **View**.
4. Click **Close** to exit the screen.



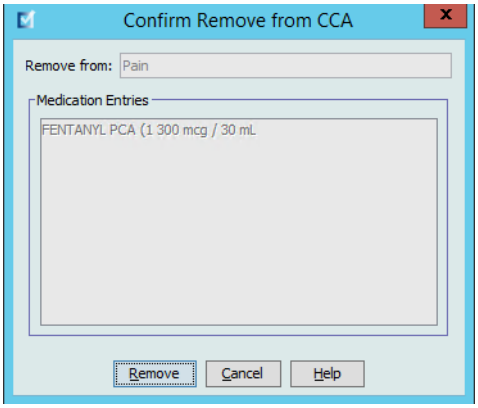
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.

Note: 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 Center.

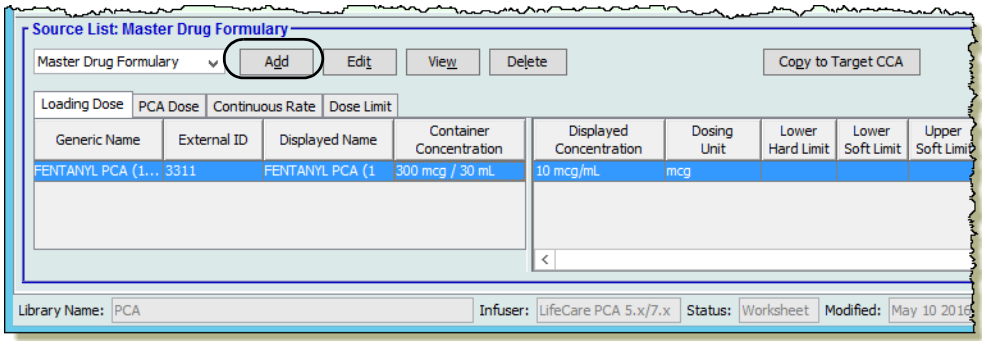
Working with the Master Drug Formulary

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.

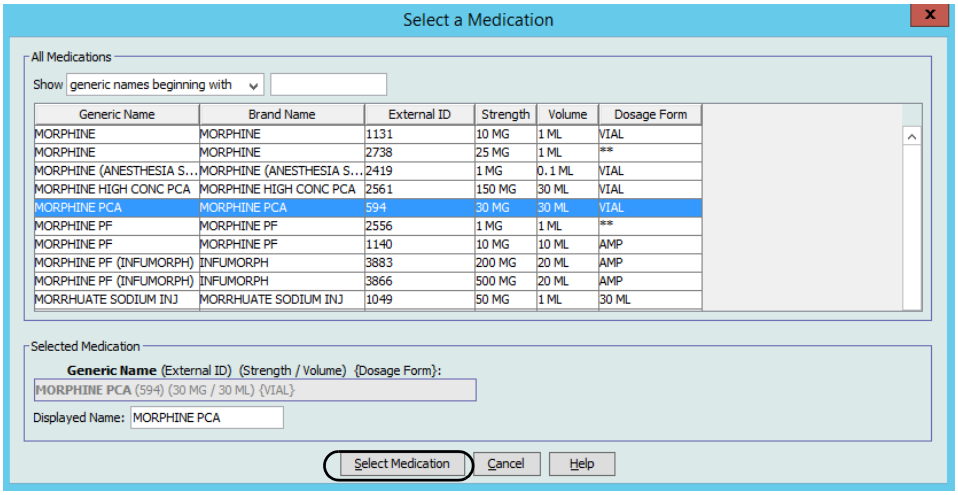
Note: Refer to Rule Set Fields on page 187 for information on allowable ranges.

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. Highlight a medication from the **Select a Medication** screen.



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.

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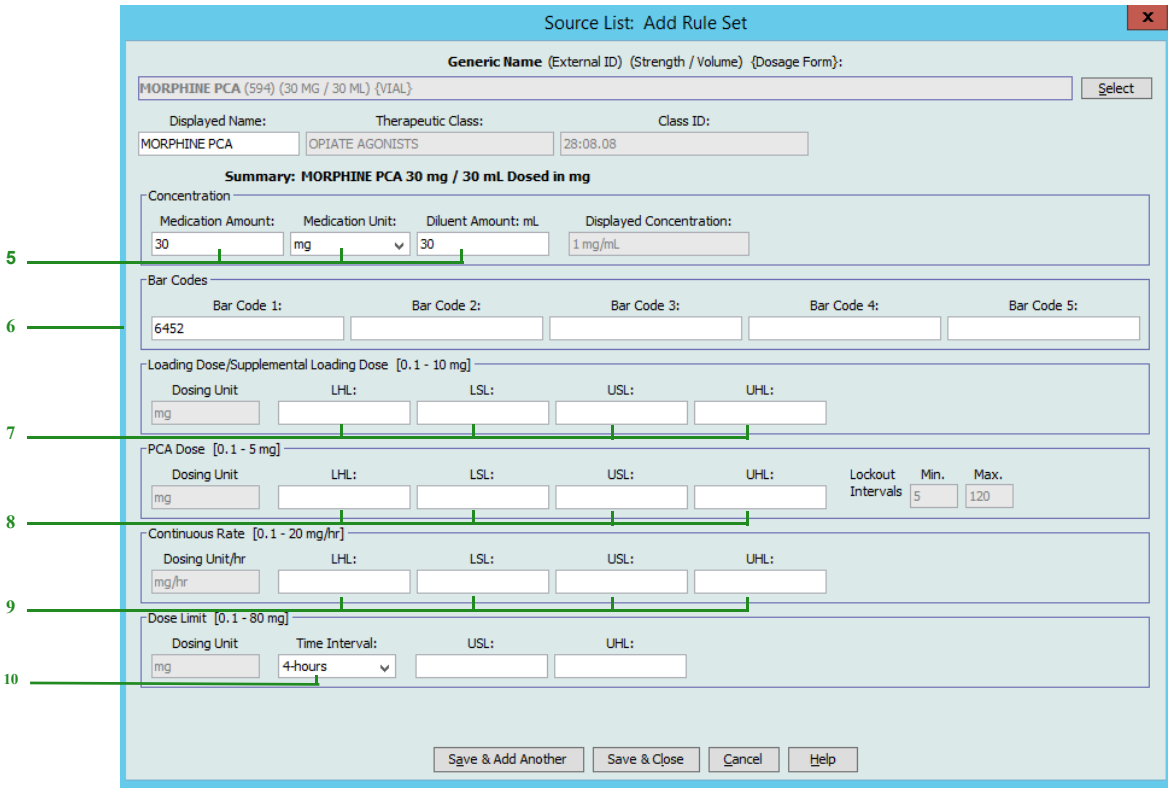


Note: The **Displayed Name** can be edited once populated. The maximum number of characters in a **Displayed Name** is determined by how it is displayed on the infuser screen. Depending on character width, the maximum number of characters allowed in a medication entry can vary from 10 to 16.

5. 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.

6. Enter the bar codes for the medication. At least one bar code is required to save the medication entry.
7. Enter soft and hard limits for Loading Dose (optional).
8. 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.

9. Enter soft and hard limits for Continuous Rate (optional).
10. Enter the time interval and soft and hard limits for Dose Limit.

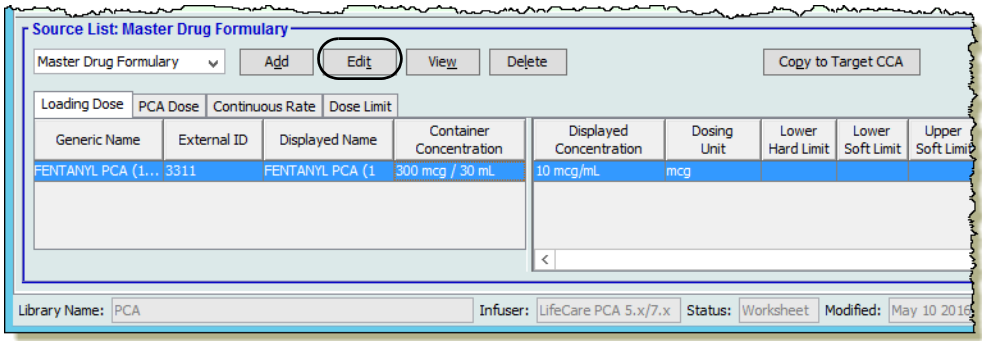
Note: The clinician is prompted on the infuser to enter a **Dose Limit** for the time interval selected.

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**.



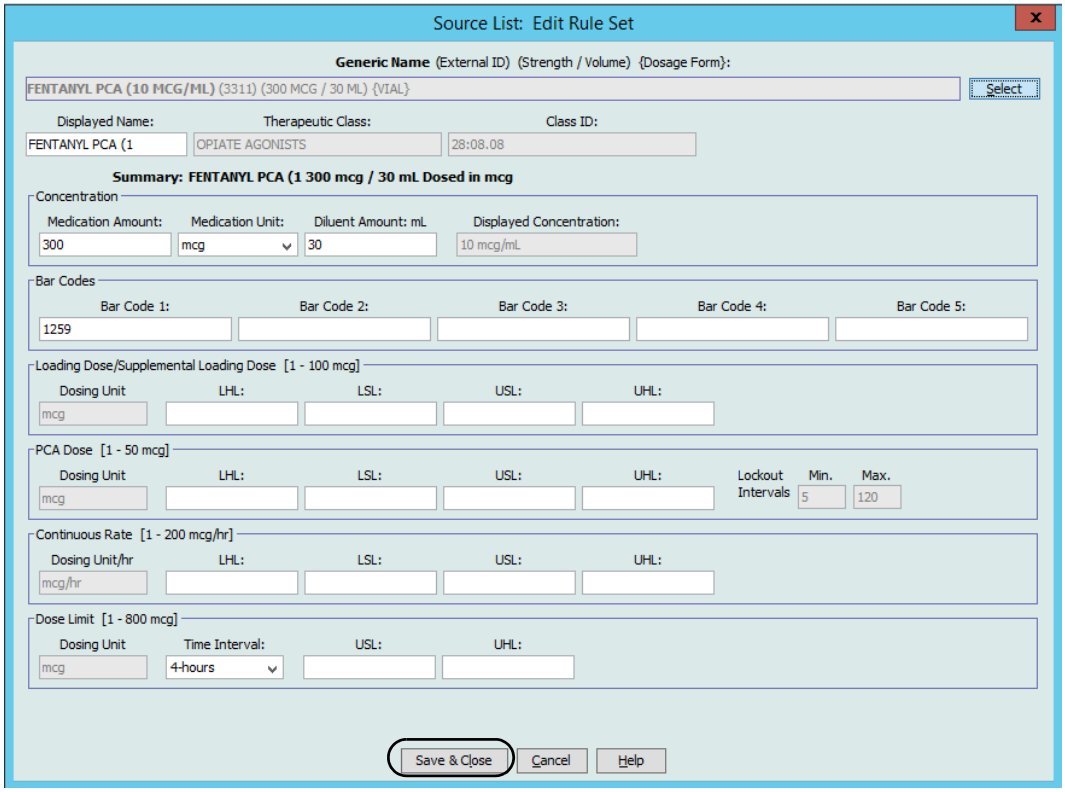
Helpful Hint: You can also double-click a medication entry to display the **Rule Set** dialog box.

Note: 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 Center.

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.

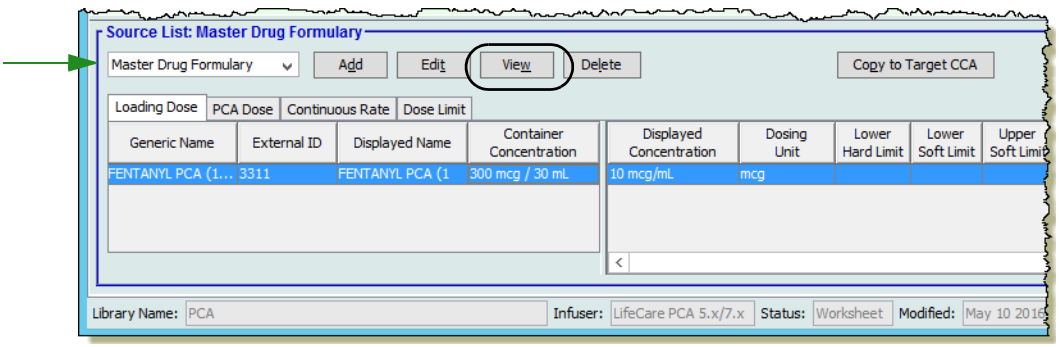
5. Click **Save & Close** to save your changes.



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.

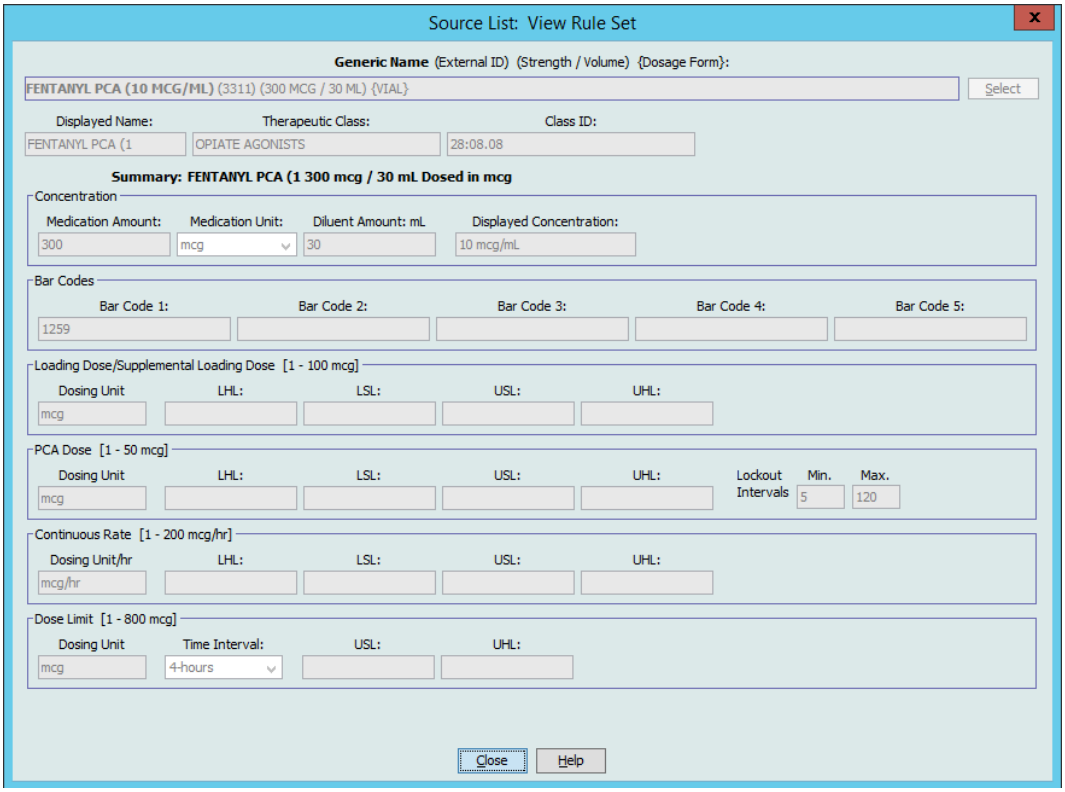
To view a medication entry in the Master Drug Formulary:

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



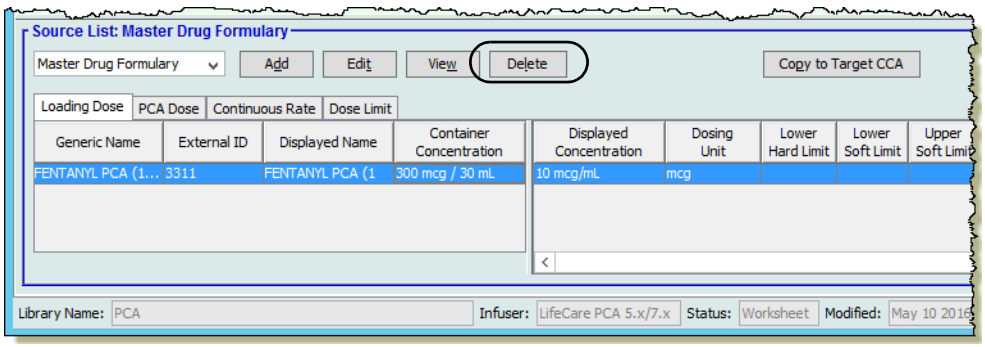
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

2. From the Source List, select the medication entry you want to view.
3. Click **View**.
4. Click **Close** to exit the screen.



To delete a medication entry from the Master Drug Formulary:

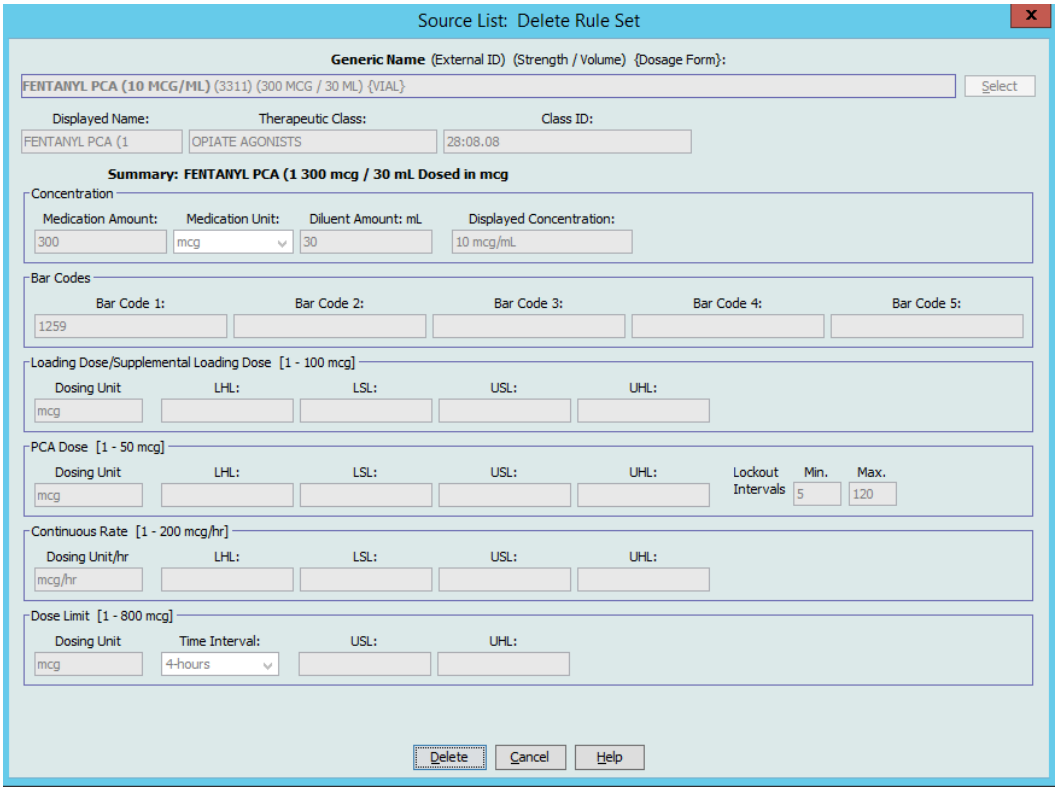
1. Select **Master Drug Formulary** from the Source List.



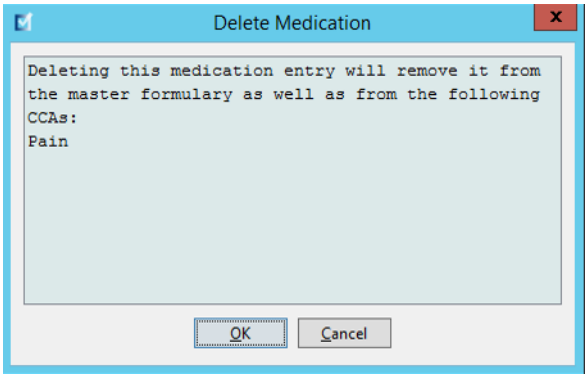
2. From the Source List, select the medication entry you want to delete.

Note: 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 Center.

3. Click **Delete**.



4. Click **OK** on the **Delete Medication** pop-up.



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.

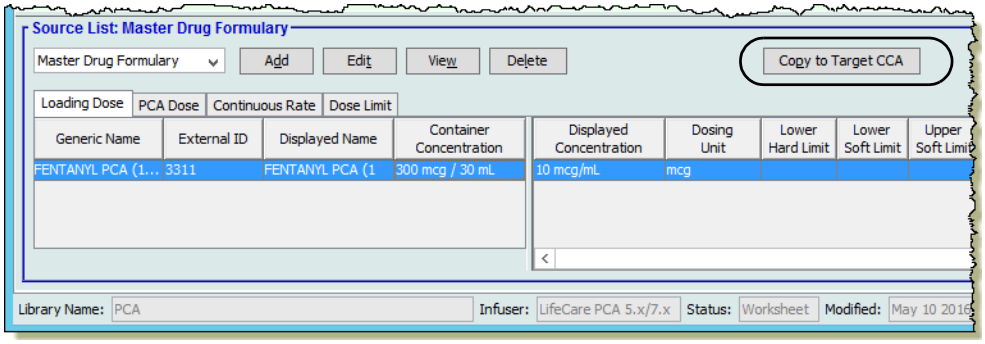
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

To copy to Target CCA:

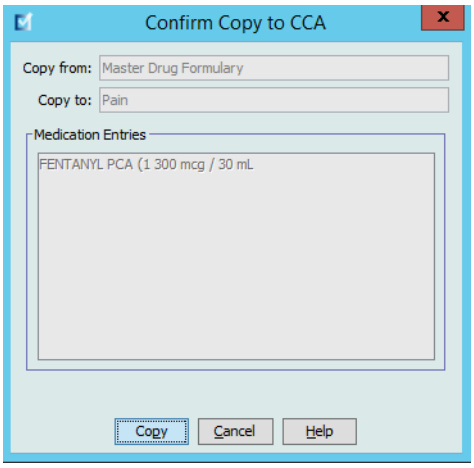
1. Select a medication entry from the Master Drug Formulary.

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**.



3. Click **Copy** on the **Confirm Copy to CCA** pop-up.



Note: 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 Center.

Notes:

Note: 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 Center.

Chapter 11: Setting Up LifeCare PCA Protocols

Overview

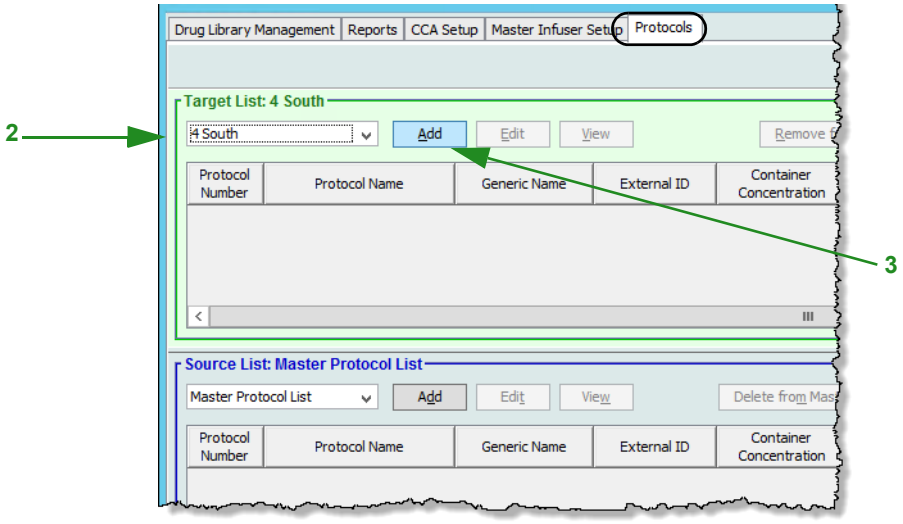
Note: Only users with the appropriate login privileges are able to setup LifeCare PCA Protocols.

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:

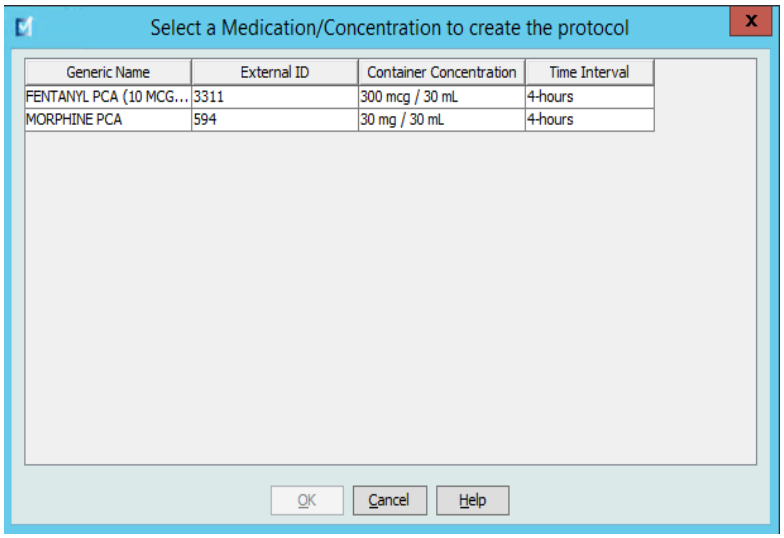
1. Display the Protocols view by opening a Worksheet for editing and clicking the **Protocols** tab (for instructions on opening a Worksheet, see **Chapter 5: The Library Directory** on page 33).



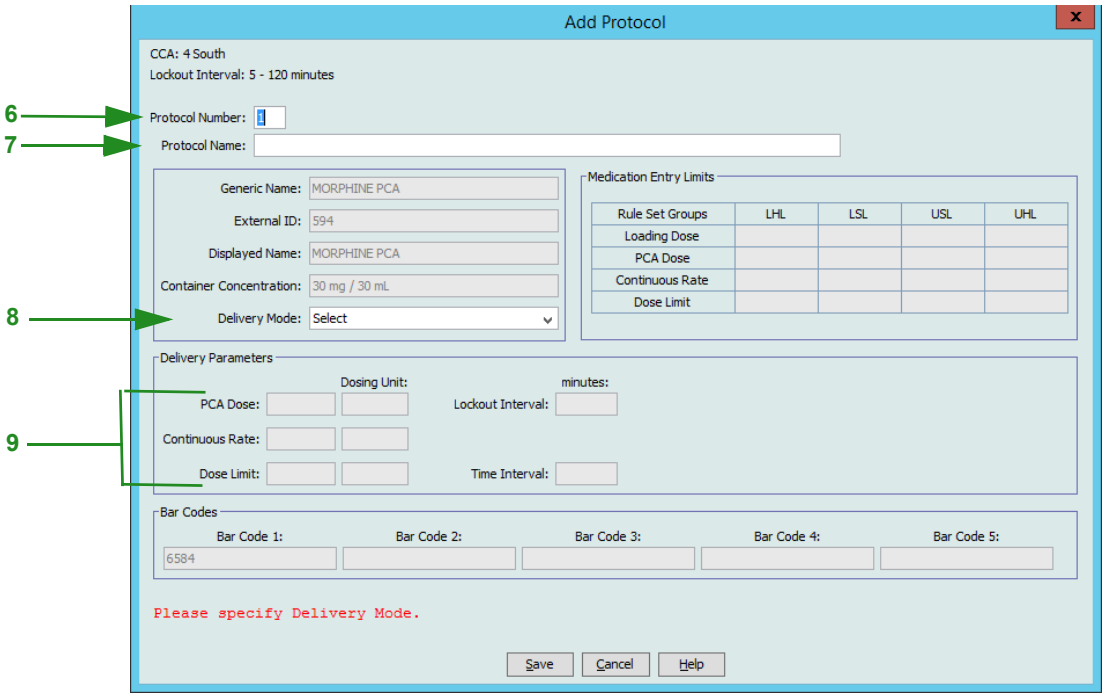
2. Under **Target List**, select a CCA from the drop-down list.
3. Click **Add**.

Note: 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 Center.

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.

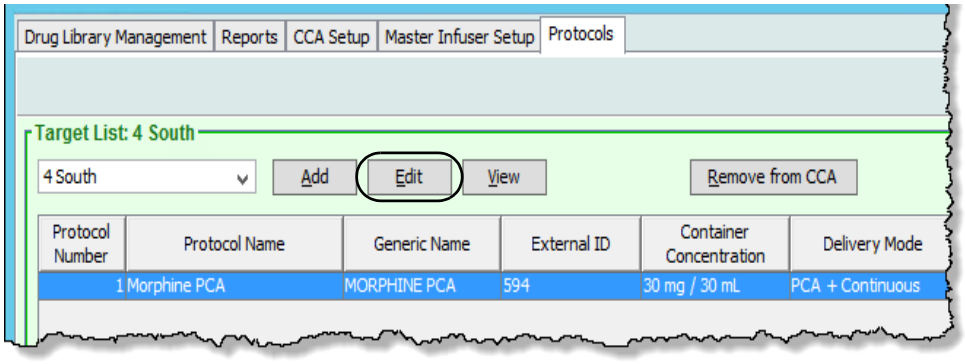
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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**.

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.

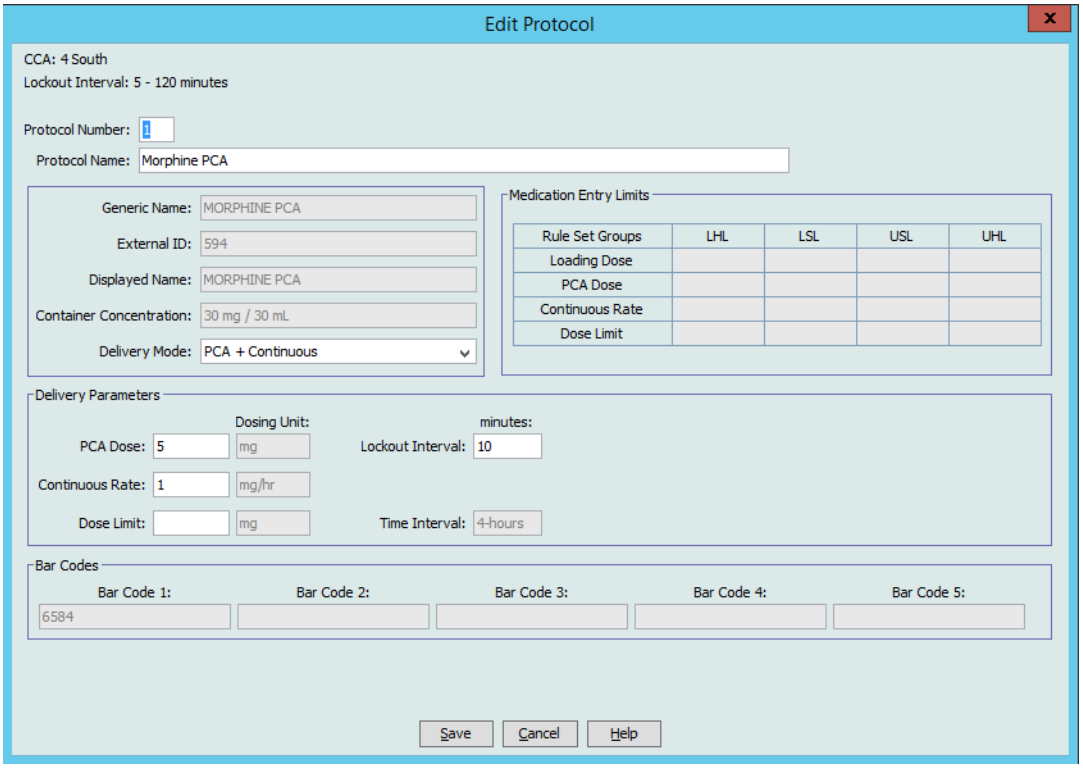
To edit a protocol:

1. From a Target List CCA, select the protocol to edit.
2. Click **Edit**.



Note: 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 Center.

3. Enter the desired changes.
4. Click **Save**.

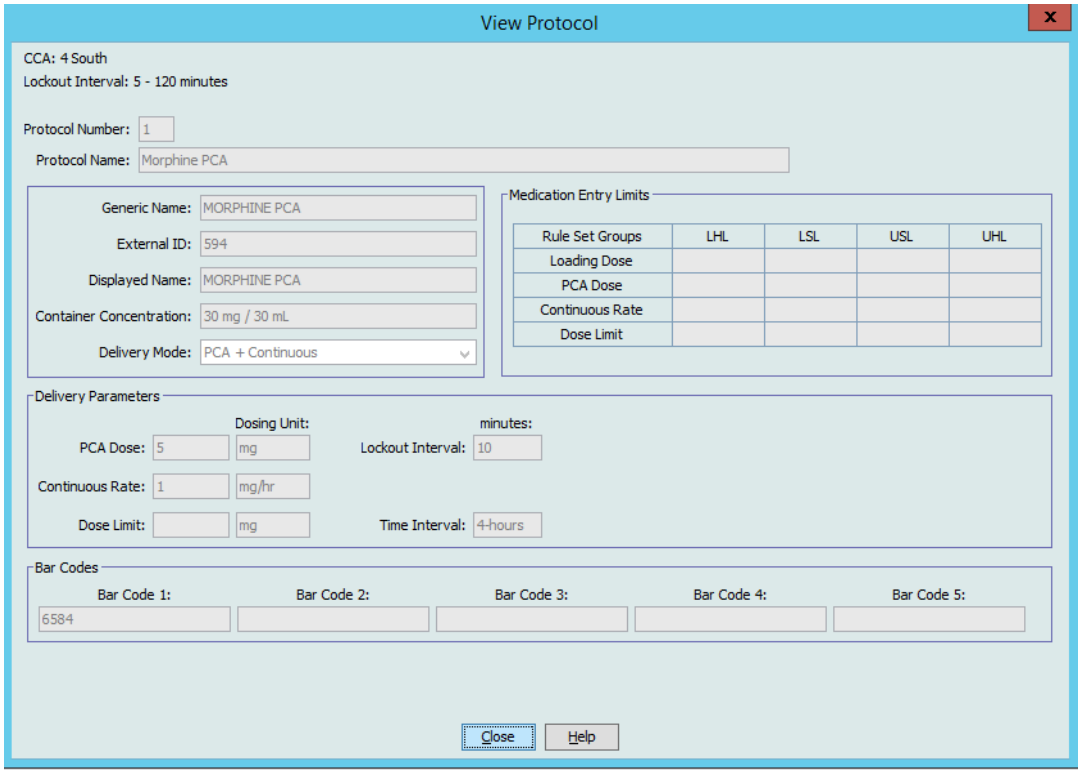


Note: All protocol dosing must be equal to or within the soft limits of the rule set for that medication and concentration (as shown in the **Medication Entry Limits** table). Values must be in the range allowed by the infuser, or an error message appears.

Note: 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 Center.

To view a protocol:

1. From a Target List CCA, select the protocol to view.
2. Click **View**.

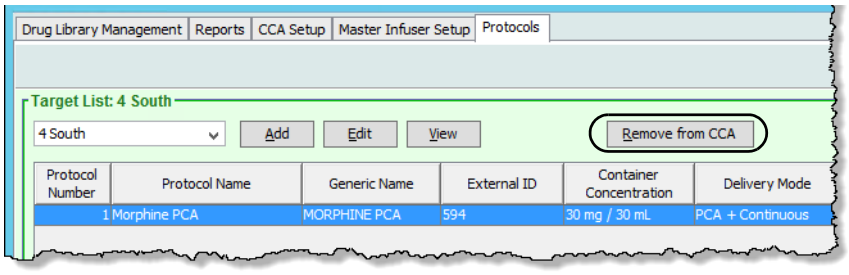


The selected protocol displays.

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

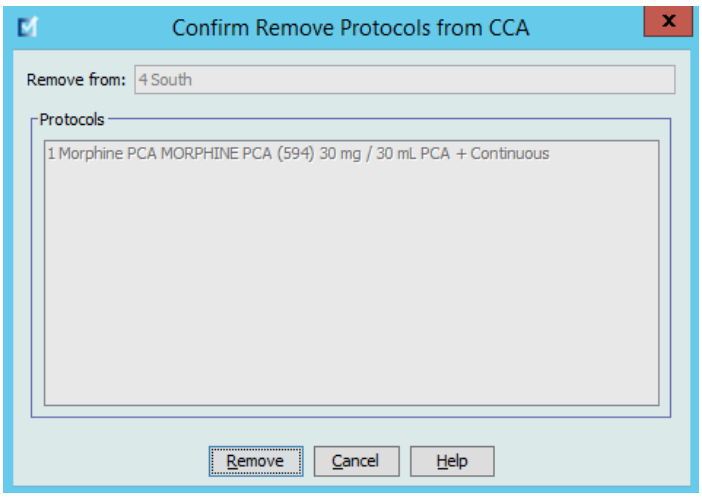
To remove a protocol from a CCA:

1. From a Target List CCA, select the protocol to be removed.
2. Click **Remove from CCA**.



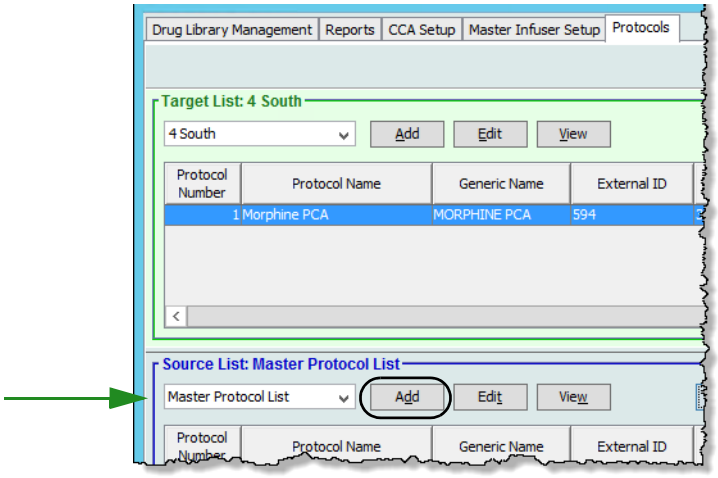
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

3. Click **Remove** on the **Confirm Remove Protocols from CCA** pop-up.



To add a protocol to the Master Protocol List:

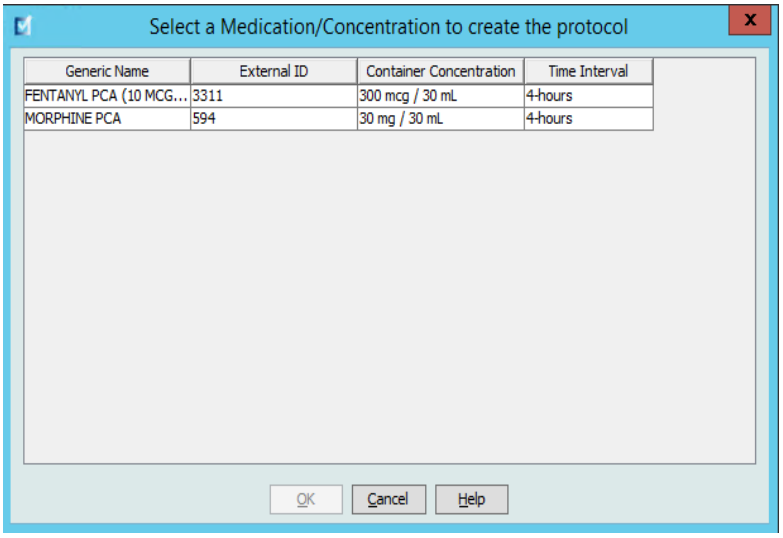
1. Display the Protocols view by opening a Worksheet for editing and clicking the **Protocols** tab (for instructions on opening a Worksheet, see **Chapter 5: The Library Directory** on page 33).



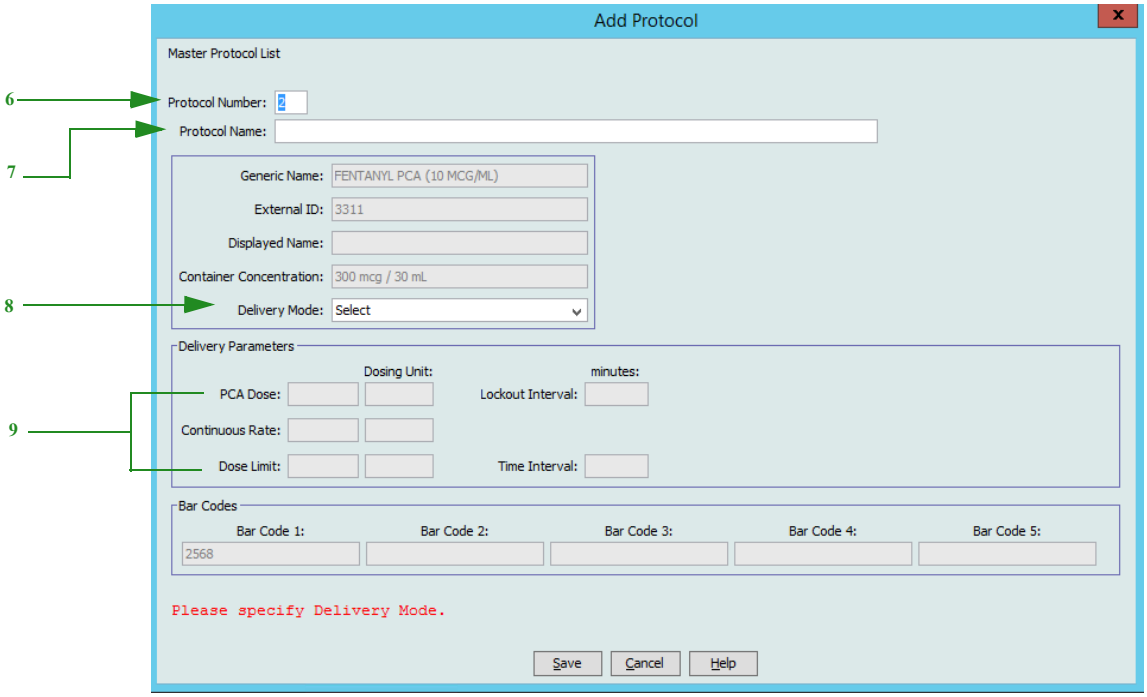
2. Under **Source List**, select the **Master Protocol List** from the drop-down list.
3. Click **Add**.

Note: 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 Center.

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**.

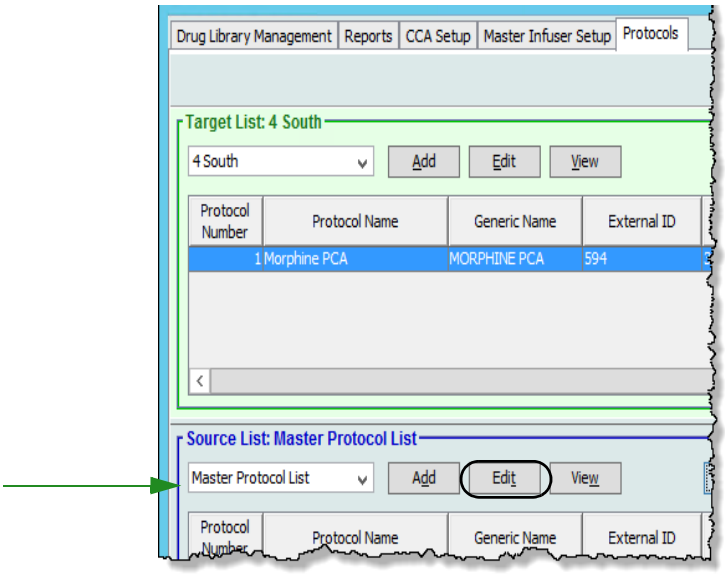
Note: The Protocol Name is not displayed on the LifeCare PCA infuser.

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**.

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.

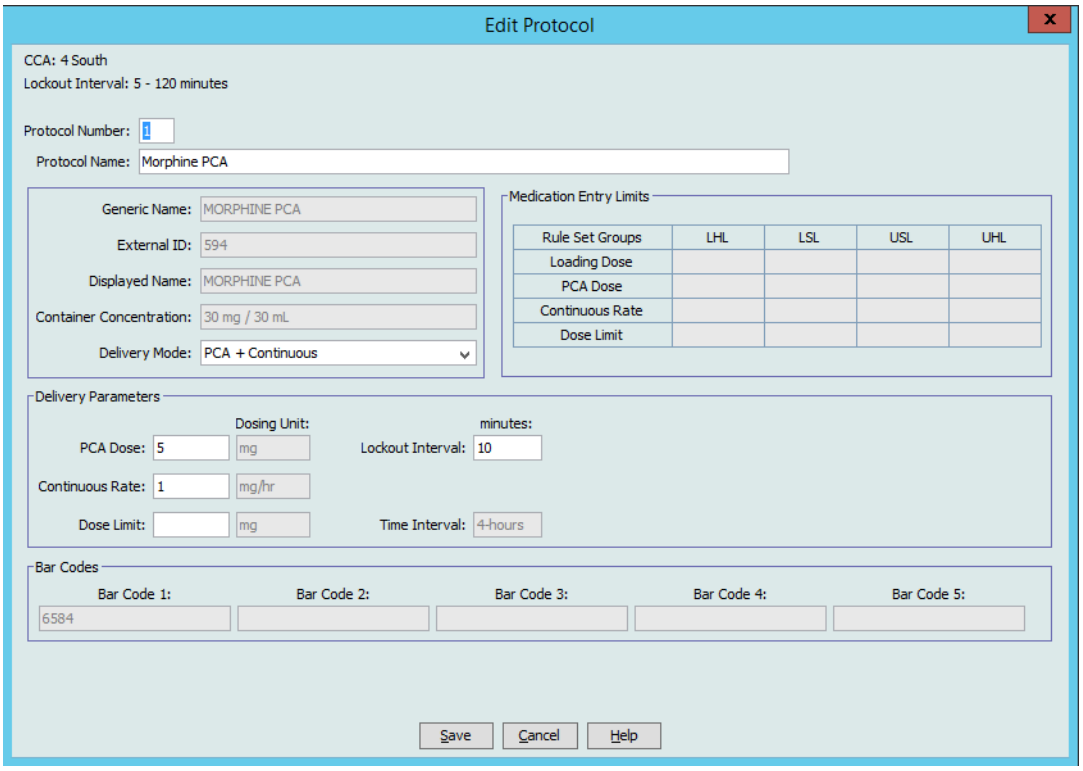
To edit a protocol in the Master Protocol List:

1. Select a protocol from the **Source List: Master Protocol List**.
2. Click **Edit**.



Note: 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 Center.

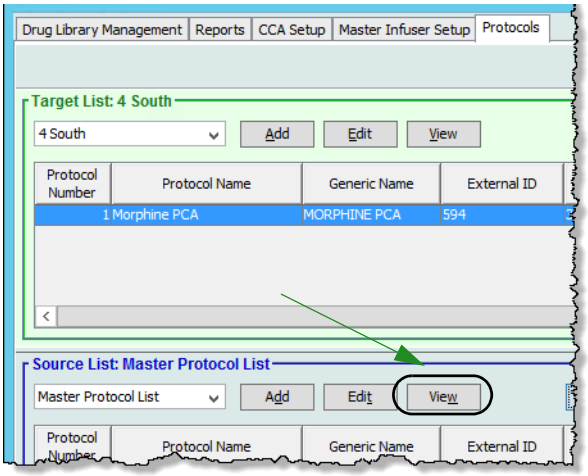
3. Enter the desired changes.



4. Click **Save**.

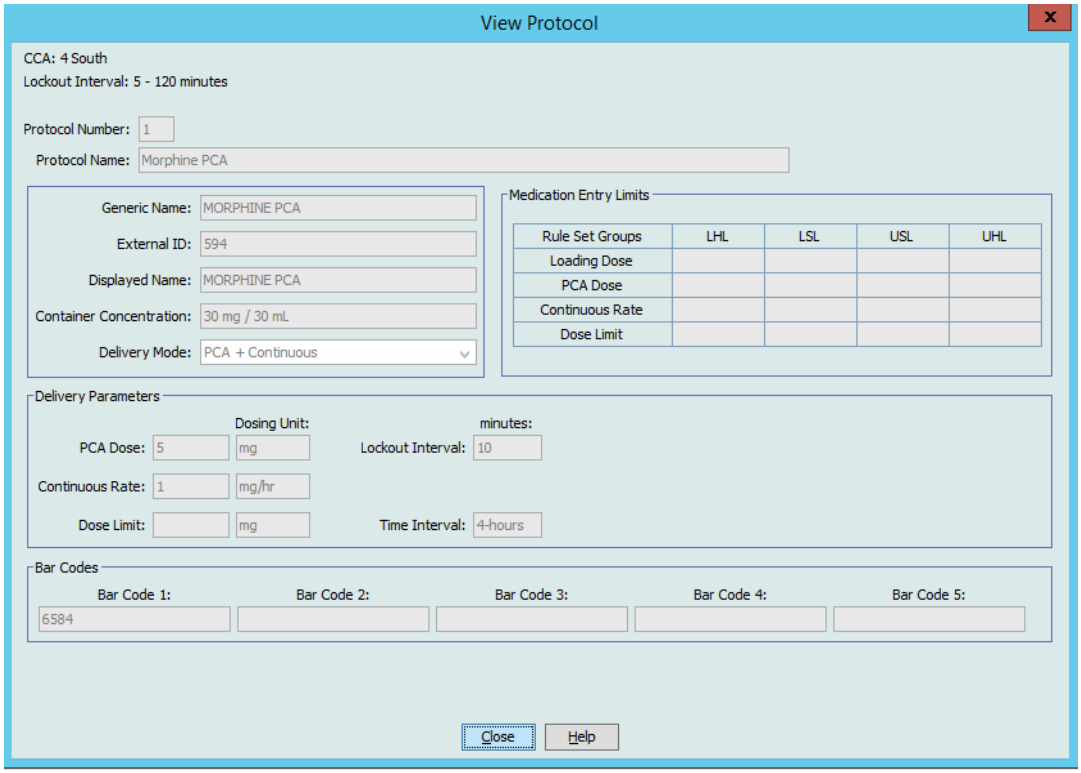
To view a protocol in the Master Protocol List:

1. Select the protocol to view.
2. Click **View**.



Note: 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 Center.

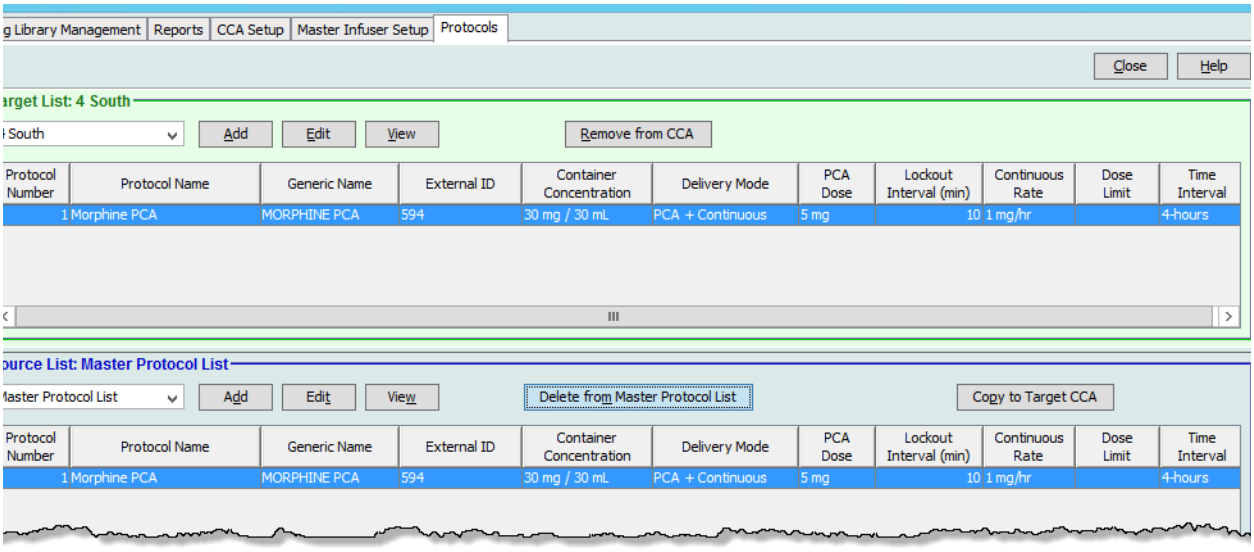
The selected protocol displays.



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

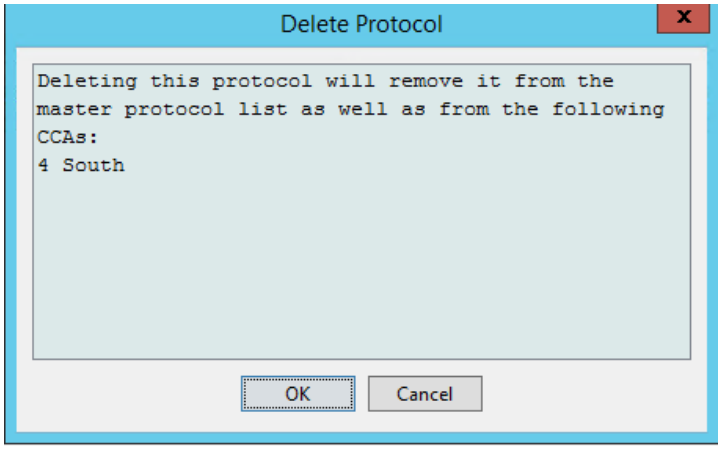
To delete a protocol from the Master Protocol List:

1. Select the protocol to delete.
2. Click **Delete from Master Protocol List**.



Note: 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 Center.

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.

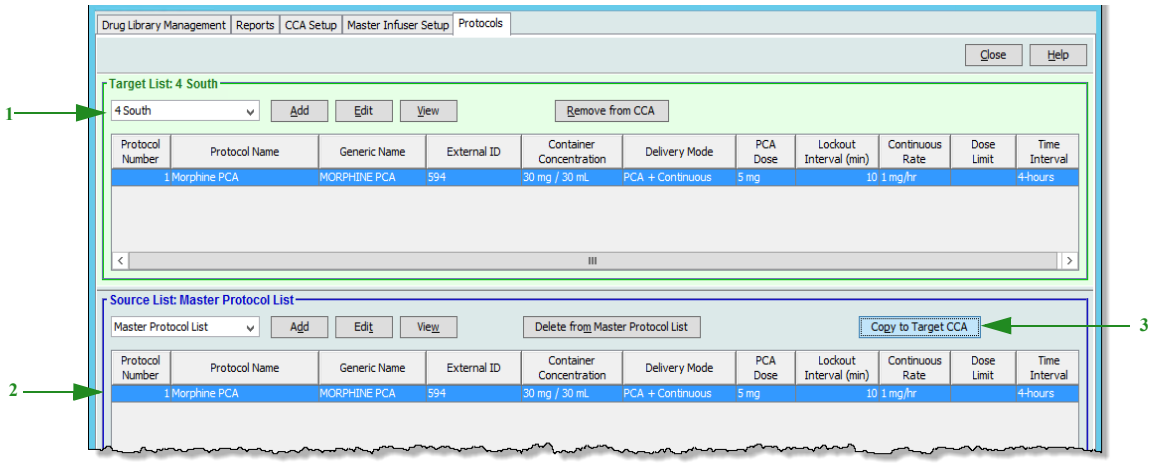
To copy a protocol to a CCA:

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.

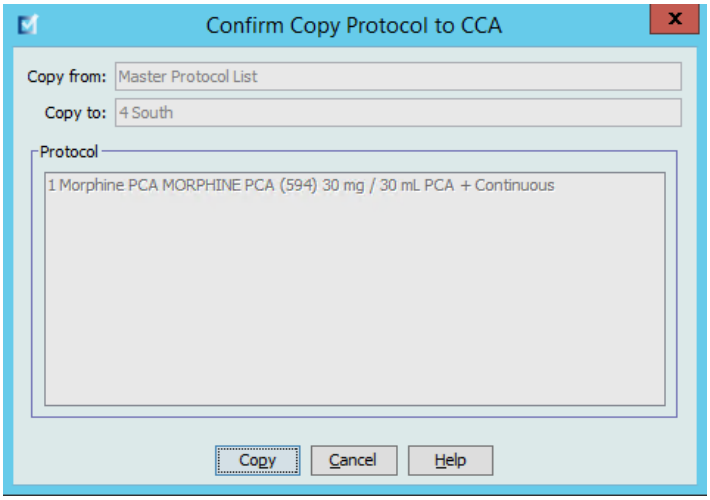
Note: A protocol can only be copied to a CCA if a medication entry with the same Generic Name, External ID, Container Concentration, and Time Interval exists in the CCA you are copying to.

3. Click **Copy to Target CCA**.



Note: 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 Center.

4. Click **Copy** in the **Confirm Copy Protocol to CCA** pop-up.



Note: 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 Center.

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.

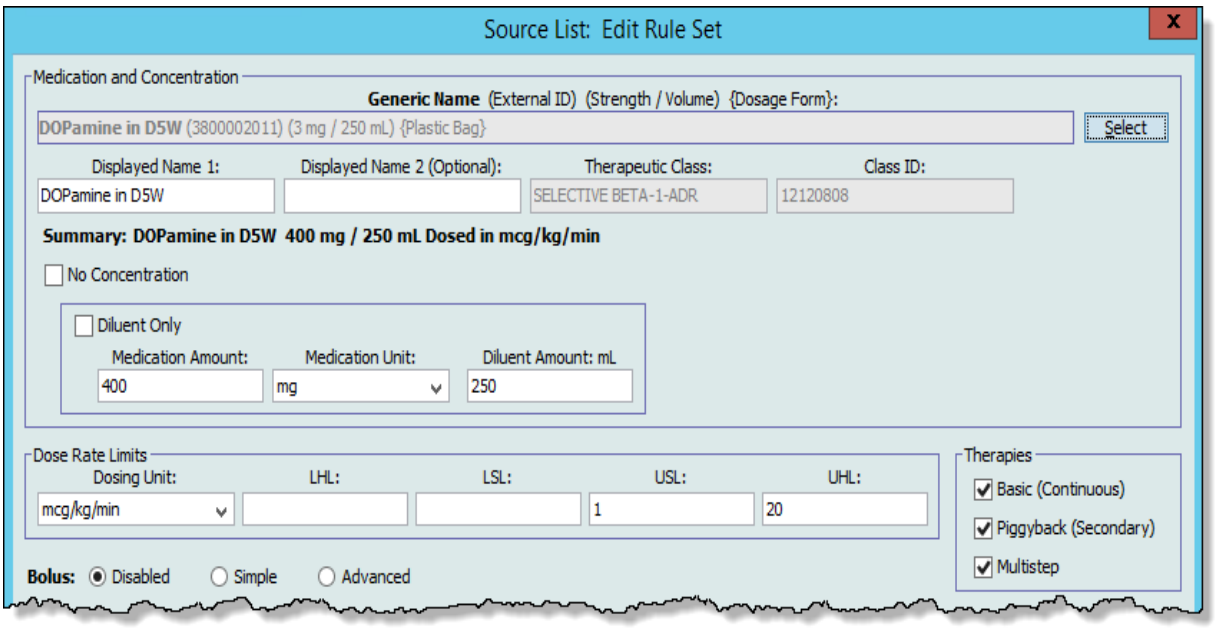
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.

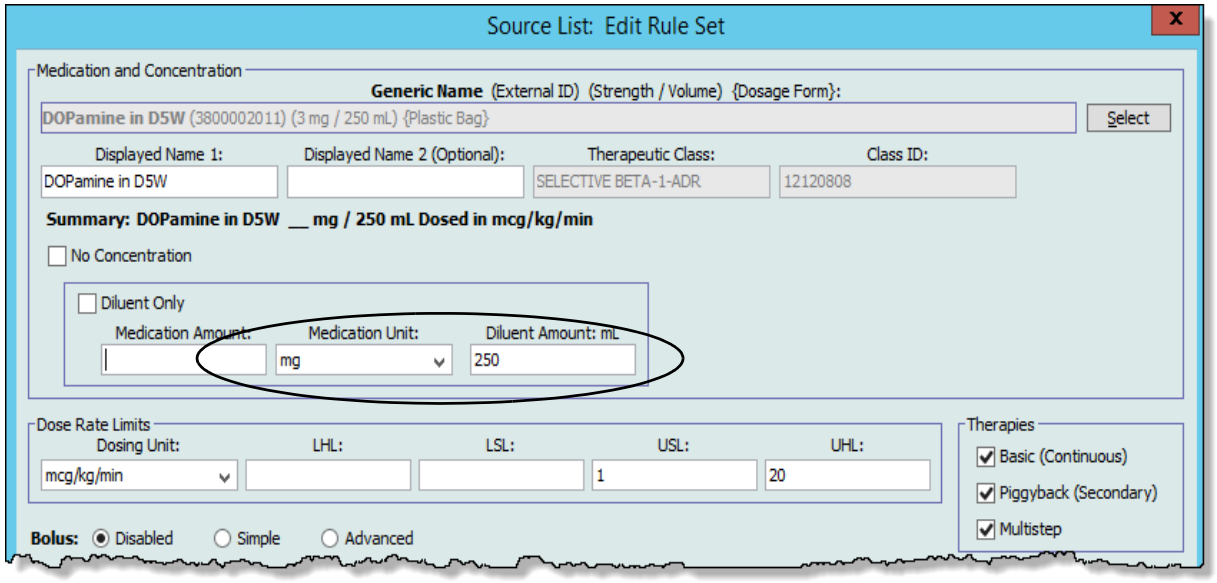


Note: Please consult the Q Core SapphirePlus User Manual for the infuser's detailed information and functionality.

Note: 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 Center.

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.

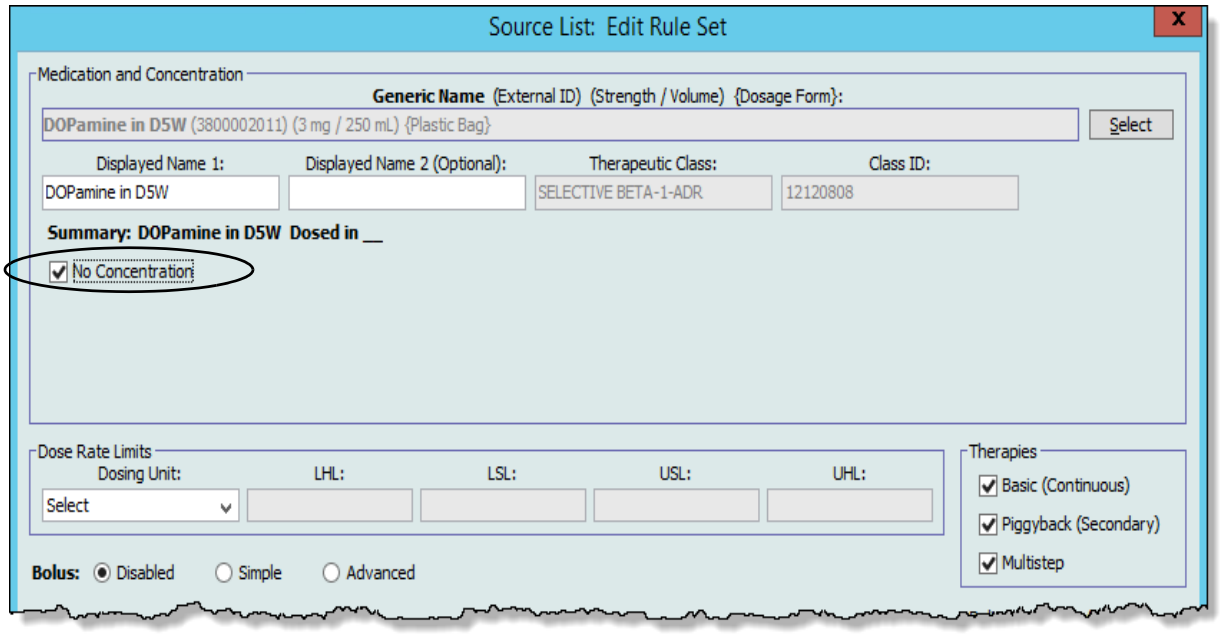


Note: Please consult the Q Core SapphirePlus User Manual for the infuser's detailed information and functionality.

Note: 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 Center.

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.

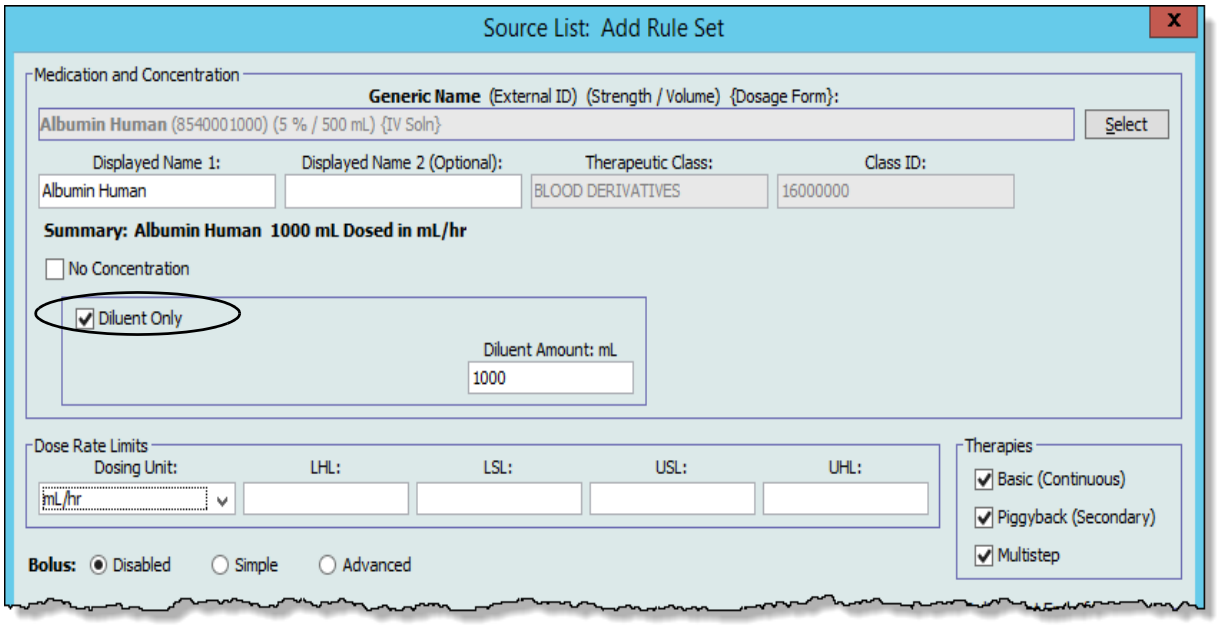


Note: Please consult the Q Core SapphirePlus User Manual for the infuser’s detailed information and functionality.

Note: 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 Center.

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.



Note: Please consult the Q Core SapphirePlus User Manual for the infuser's detailed information and functionality.

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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.

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.

Note: 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 Center.

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.

Note: The maximum rate for a piggyback infusion from a secondary container is 500 mL/hr.

- **Multistep**: Allows the user to program an infusion with up to 25 sequential steps.

Note: 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 Center.

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% -**
and then you would type
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.

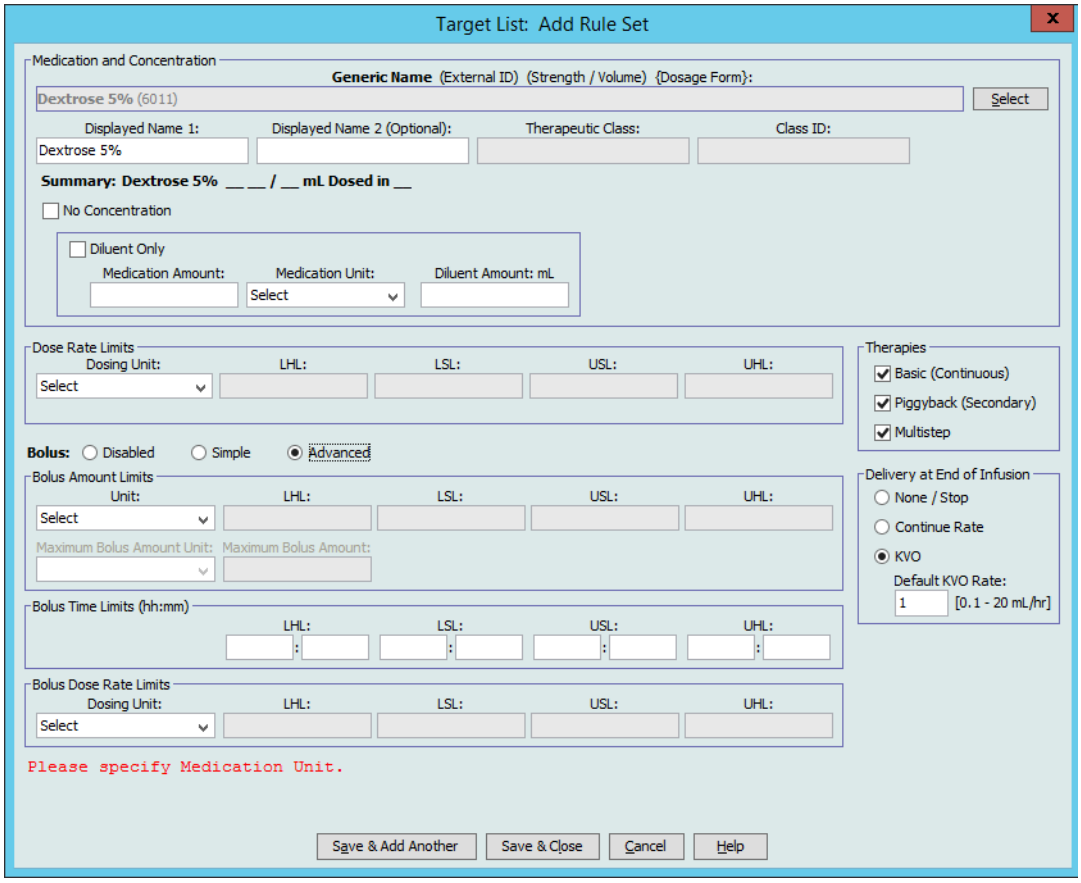
- Once you select a medication unit, the dosing unit field will display only the enabled unit type.
- The software prohibits invalid numeric entries and signals them with an audible "beep."
- You may use the vertical and horizontal scroll bars to navigate to an entry.
- If you do not select or populate 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.

Note: 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 Center.

The SapphirePlus Medication Rule Set

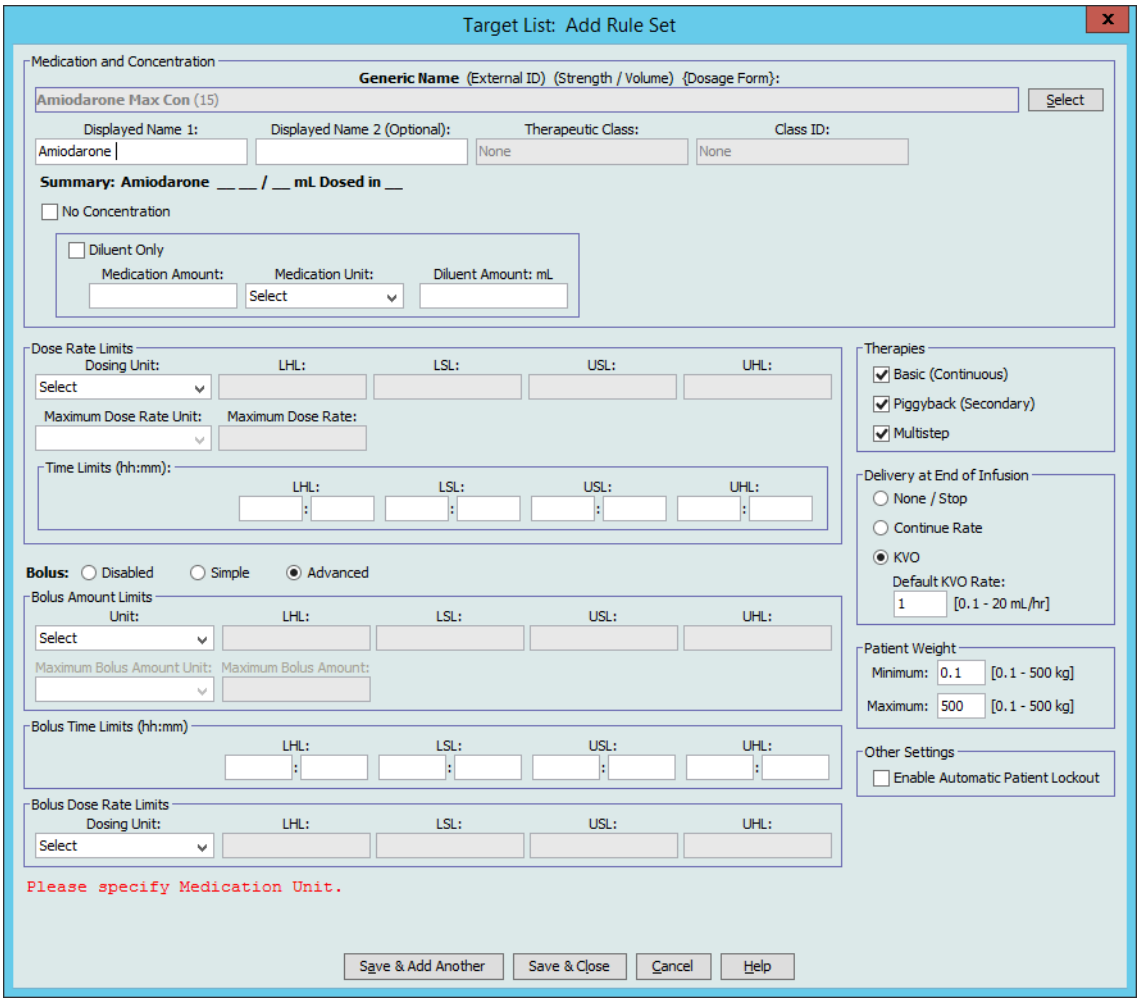
When you configure a medication for use in the SapphirePlus drug library, the Rule Set window enables you to define dosage limits as seen in the screen below.

SapphirePlus 14.0



Note: 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 Center.

SapphirePlus 14.5



Note: 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 Center.

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.	• Cannot be blank • 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. • The maximum number of characters allowed in a displayed name is 40 (SapphirePlus 14.0 and 14.5) when using both Displayed Name fields. • Displayed Name cannot contain comma (,) lesser than (<), greater than (>), or double-quote (") characters. All alphabetic and numeric characters are acceptable as are . % / # * - _ & ( ) + SPACE SapphirePlus 14.5 only allows: lesser than (<), greater than (>), and equal (=).
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: • 0.01-99.99 in increments of 0.01 • 100-9999999 in increments of 1 For SapphirePlus 14.5: • 0.001-9.999 in increments of 0.001 • 10.00-99.99 in increments of 0.01 • 100-9999999 in increments of 1

Note: 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 Center.

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: • 0.1-99.9 mL in increments of 0.1 • 100-9999 mL in increments of 1
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: • 00:01-99.59 in increments of 00:01
Therapies	Therapies allowed for the drug entry. Choosing one of these determines where the drug is listed on the infuser.	• Basic (Continuous) • Piggyback (Secondary) • Multistep
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[1]	Allows you to define the total amount of medication that can be administered in a bolus.	For mL: • 0.1-99.9 in increments of 0.1 • 100-9999 in increments of 1 For nanog, mcg, mg, gram, milliUnits- and units-based, Million Units, mEq, mmol: • 0.001-99.999 in increments of 0.001 • 100-9999999 in increments of 0.1

Note: 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 Center.

Field	Description	Allowable Range
Maximum Bolus Amount and Units[1]	Enabled when the selected Bolus Amount Limits Unit is weight-based. 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. If the Bolus Amount Limits Unit is mL/kg, the Maximum Bolus Amount Units are mL.	See Bolus Amount Limits.
Bolus Time[1]	Allows you to define the time period over which a bolus can be administered, in hh:mm format.	Entered Time: • 00:01-99:59 in increments of 00:01
Bolus Dose Rate[1] Limits	Allows you to define the rate at which a bolus can be administered.	For mL family (Basic, Multistep and Bolus): 0.1-99.9 in increments of 0.1 100-999 in increments of 1 For mL (Piggyback only): 0.1 - 99.9 in increments of 0.1 100 - 500 in increments of 1 For the following families: grams, units, Million Units, mEQ-based, and mmol: 0.001-99.999 in increments of 0.001 100-9999999 in increments of 1
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	Minimum 0.1 - 500 kg (Default: blank) Maximum 0.1 - 500 kg (Default: blank)
Other Settings Enable Automatic Patient Lockout (SapphirePlus 14.5 only)	Prevents patient from affecting the rule set.	Check or uncheck. **Note:** The field is disabled if “Enable Automatic Patient Lockout” has been selected in CCA settings.

[1] Visible only when Bolus is enabled.

Refer to your infuser's System Operating Manual for complete details and allowable range.

Note: 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 Center.

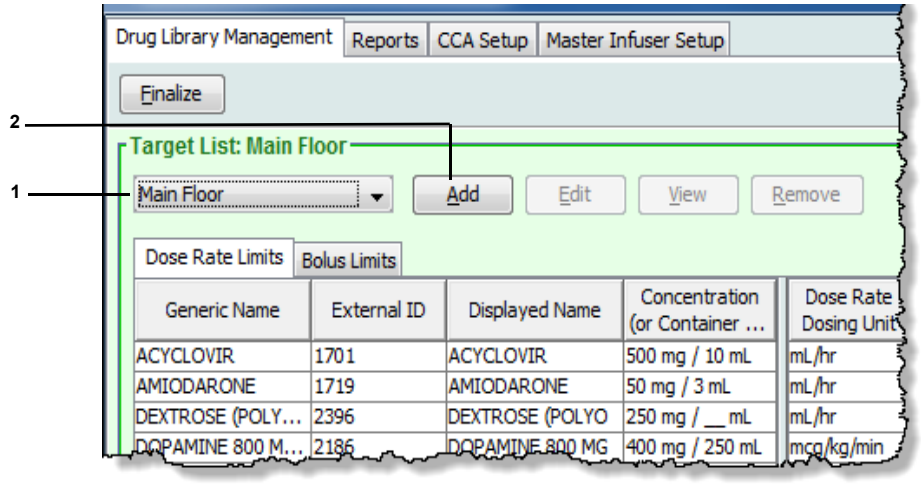
Step-by-step Procedures

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

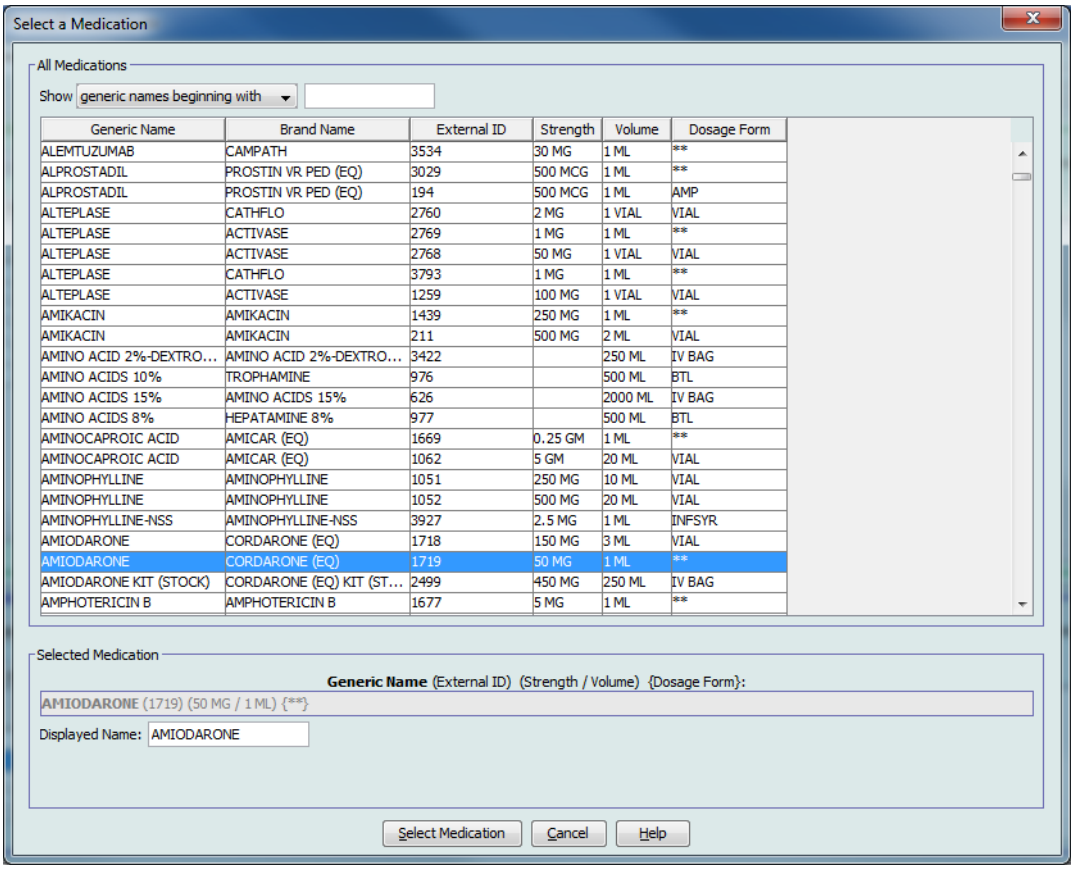
To add a medication entry in a CCA:

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



Note: 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 Center.

3. Select the **Generic Name** for the medication entry from the medication list.

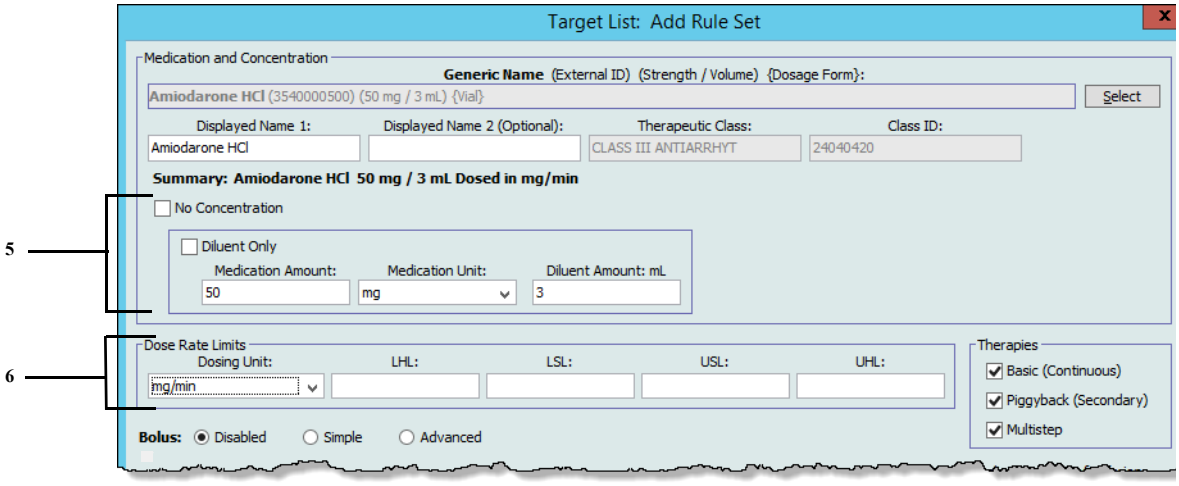


4. Click **Select Medication**.

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

Note: 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 Center.

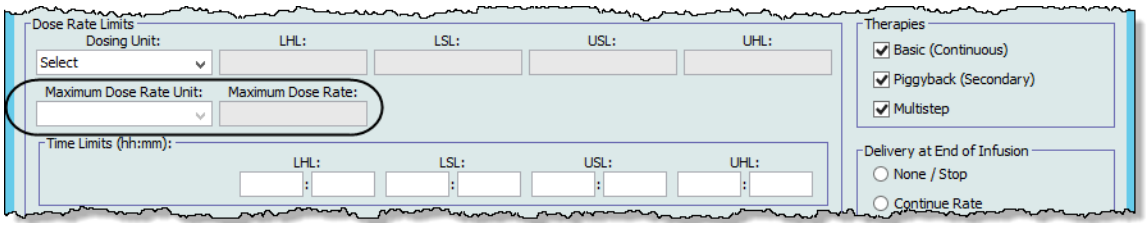
5. The **Displayed Name** can be edited once populated. You can either accept or edit the Displayed Name before continuing. For **SapphirePlus 14.0 and SapphirePlus 14.5**, the maximum number of characters in the **Displayed Name** is 40 when using the two available fields.



6. 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**.
7. 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.

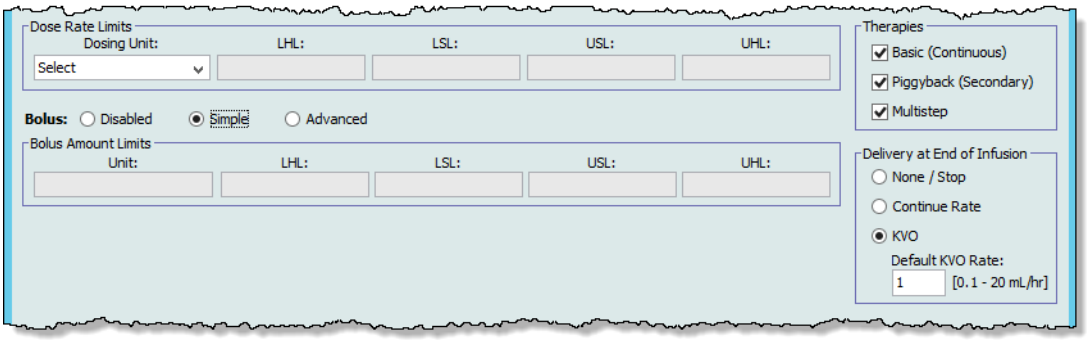
Note: The **Time Limits** fields are disabled when **Multistep** is checked in Therapies.

8. 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.

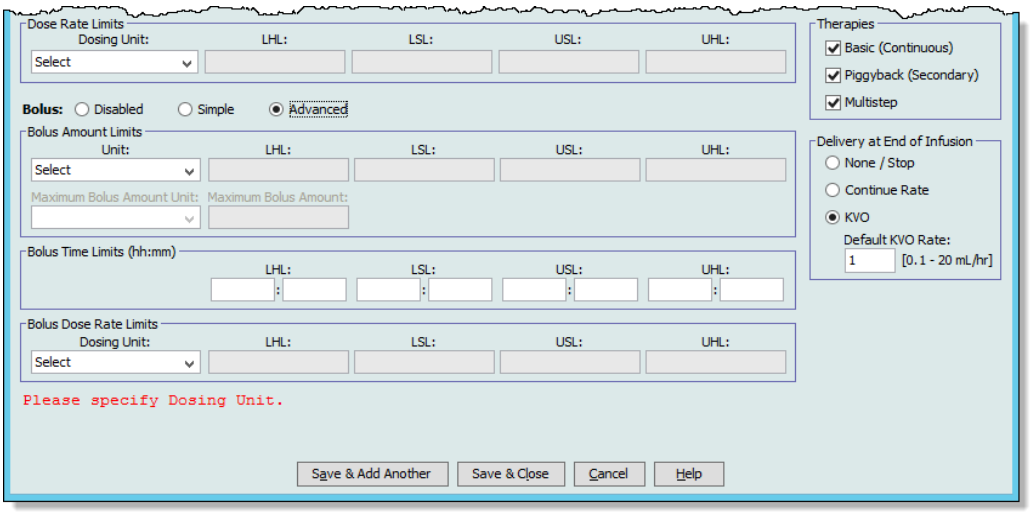


- **Advanced**. When the Advanced option is selected, the following fields are available:

a. **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.

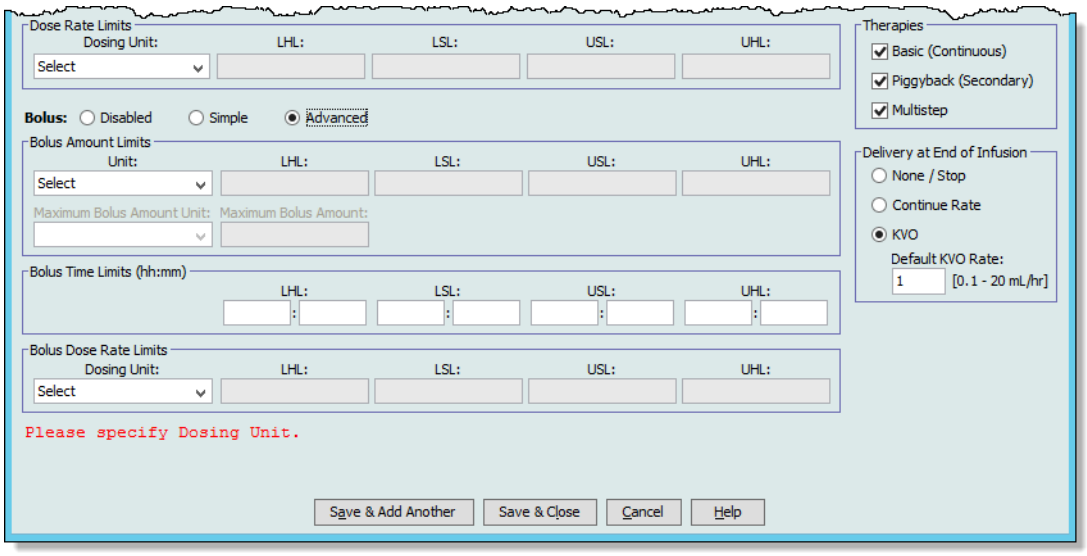
b. **Bolus Time Limits**: Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit.

c. 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)

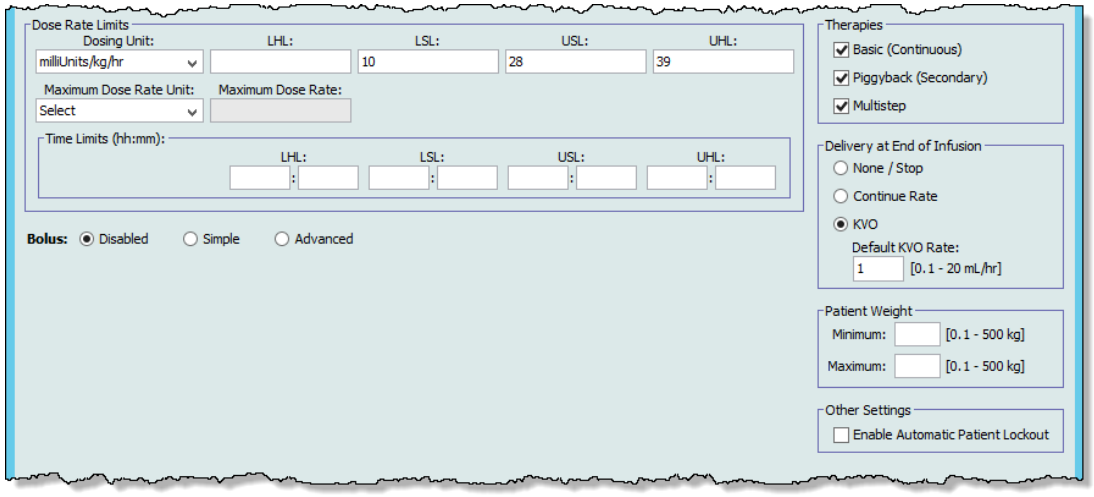


9. For **Therapies**, check or uncheck Basic (Continuous), Piggyback (Secondary), and Multistep, as needed. At least one of the therapies must be checked to enable the medication to be selected from the Program screen on the infuser.

Note: 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 Center.



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).

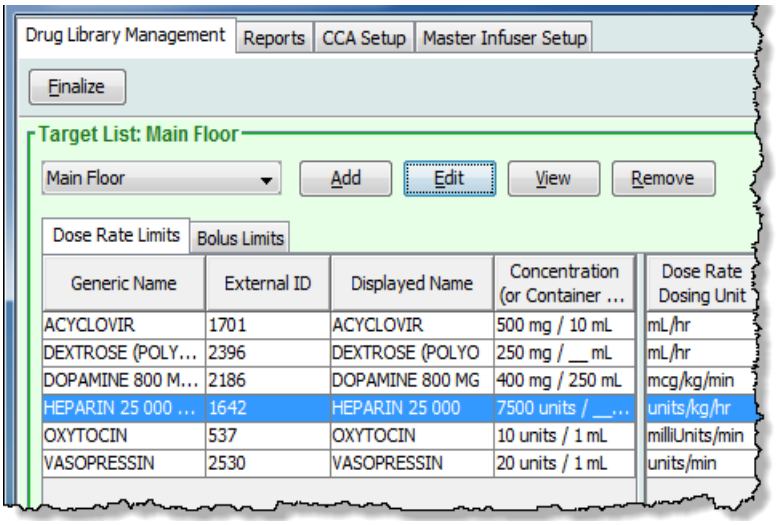


11. **Patient Weight** (For SapphirePlus 14.5 only) allows you to select the minimum and maximum weight for a patient. The defaults are blank for minimum and blank for maximum. If no values are entered, the range will be determined by the values set in the CCA settings.
12. **Other Settings** (For SapphirePlus 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.

Note: 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 Center.

To edit a medication entry in a CCA:

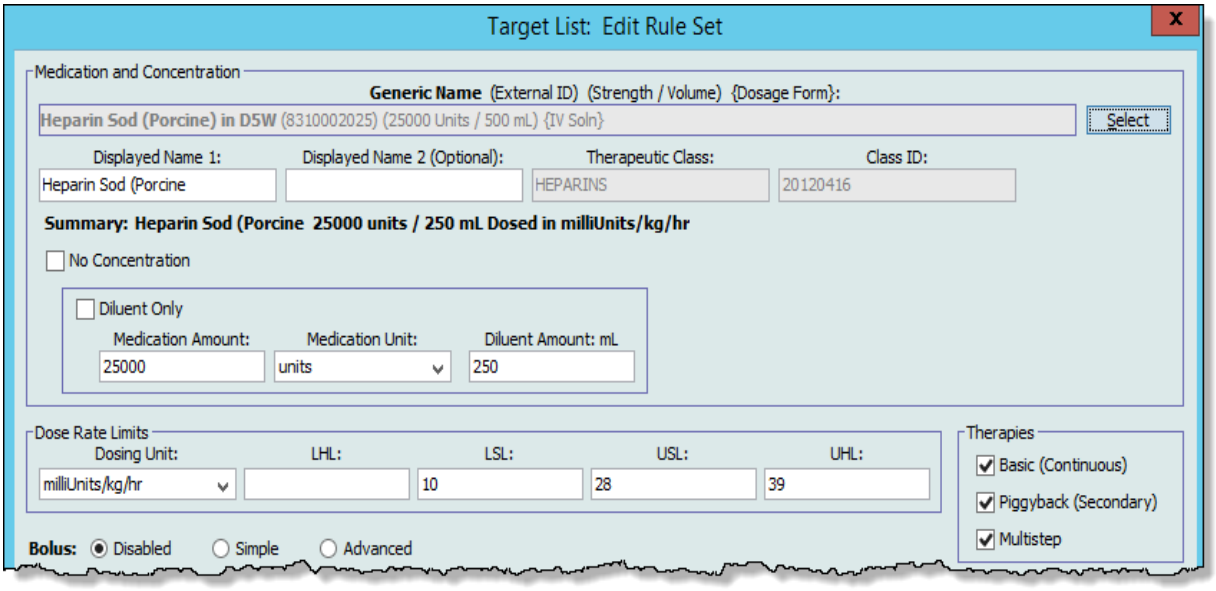
1. Select the CCA containing the medication entry you want to edit from the **Target List** drop-down.
2. From the **Target List**, select the medication entry you want to edit.



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.



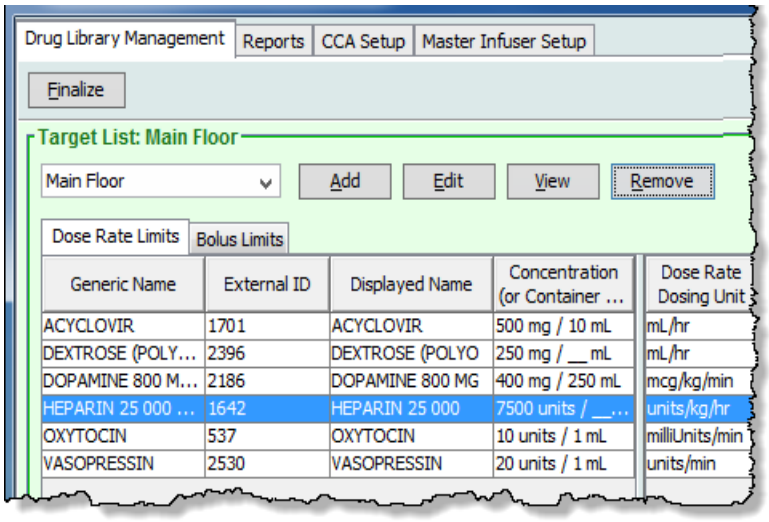
5. Click **Save & Close** to save your changes.

Note: Medication entries in the Master Drug Formulary will be updated with the same change.

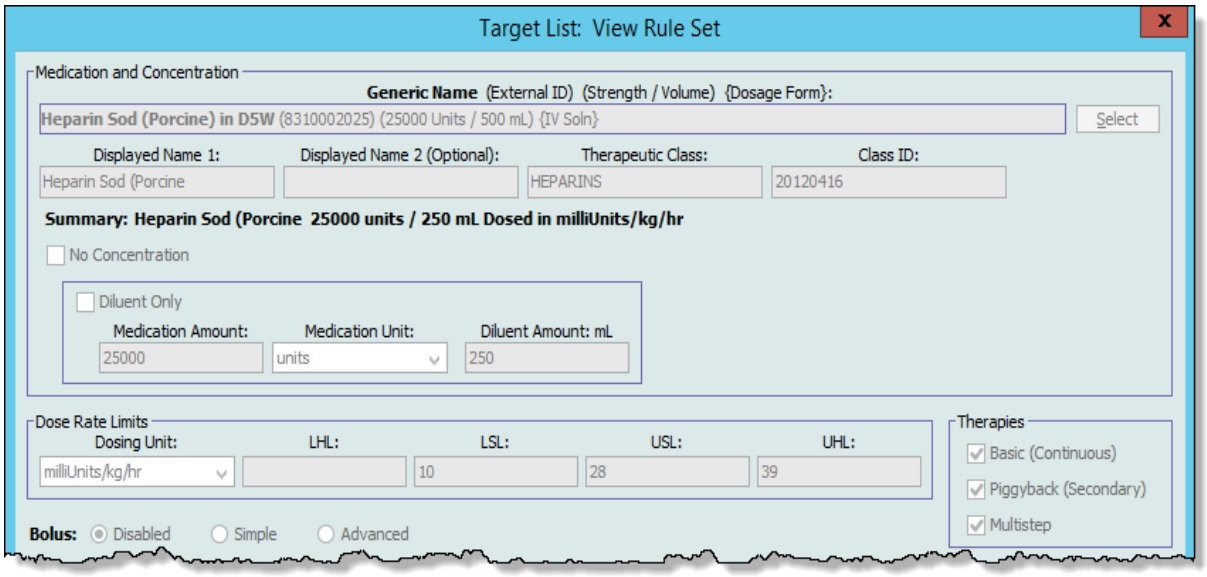
If you edit a medication entry in one CCA and then edit another CCA with different rule sets, there will be two medication entries in the Master Drug Formulary that will show the same medication but each will have its own rule set.

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.



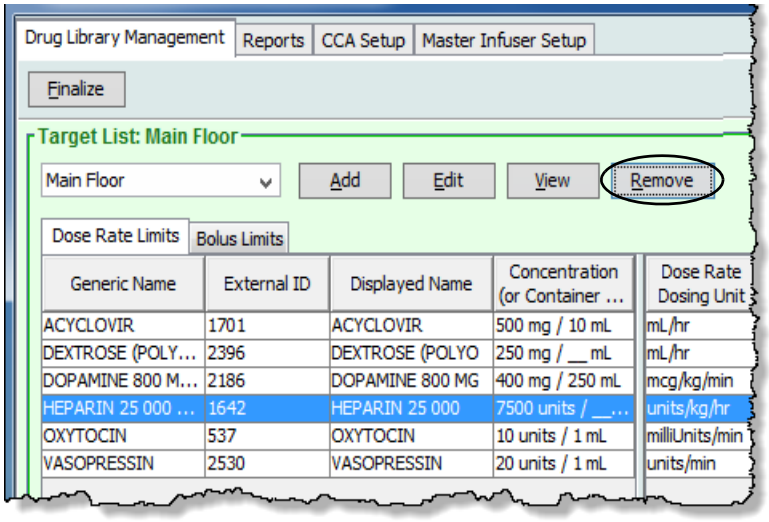
2. Select a medication.
3. Click **View**.
4. Click **Close** to exit the screen.



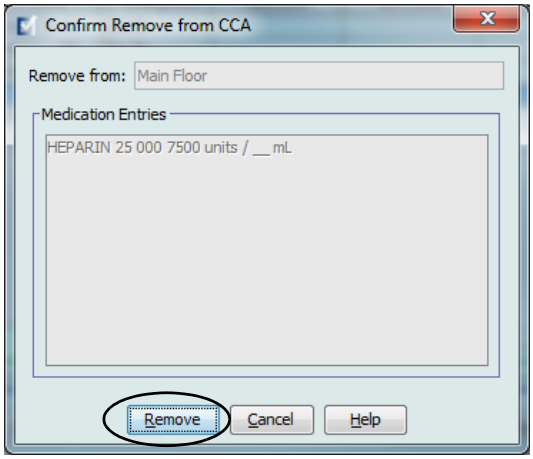
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.

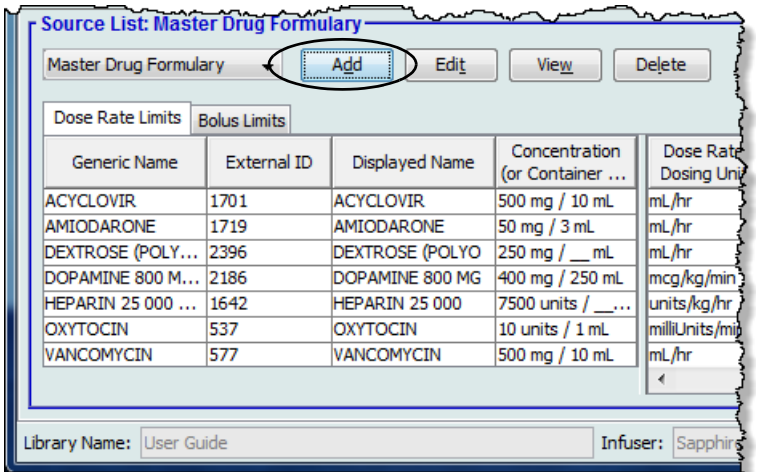
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

Working with the Master Drug Formulary

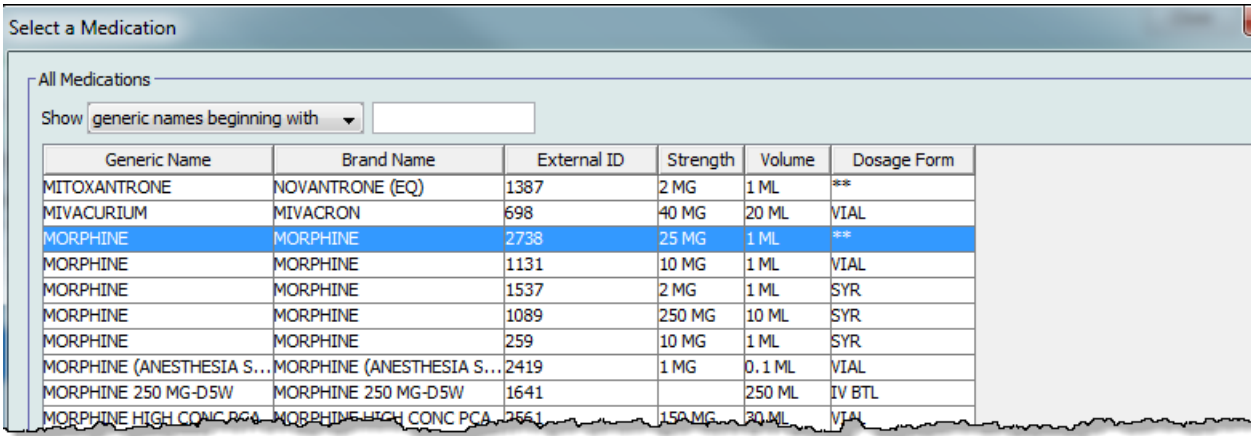
Note: Refer to the Rule Set Fields section on page 225 in this chapter for information on allowable ranges.

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.

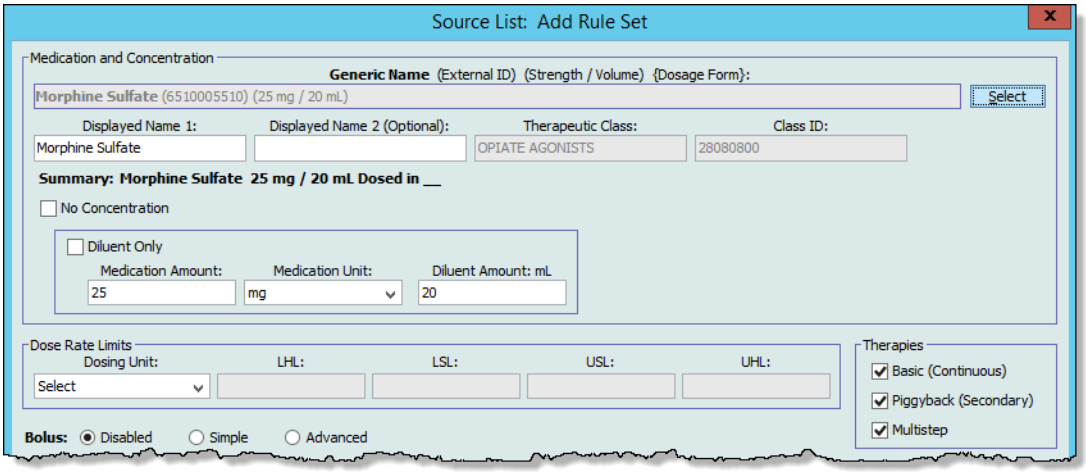
If the desired generic name is not in the **Generic Name** list, you may add a medication to the Medication List. Alternatively, you can add the generic name by importing a new **Medication List** via the **Medication Import** function of the ICU Medical MedNet Meds software.

Note: 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 Center.

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.

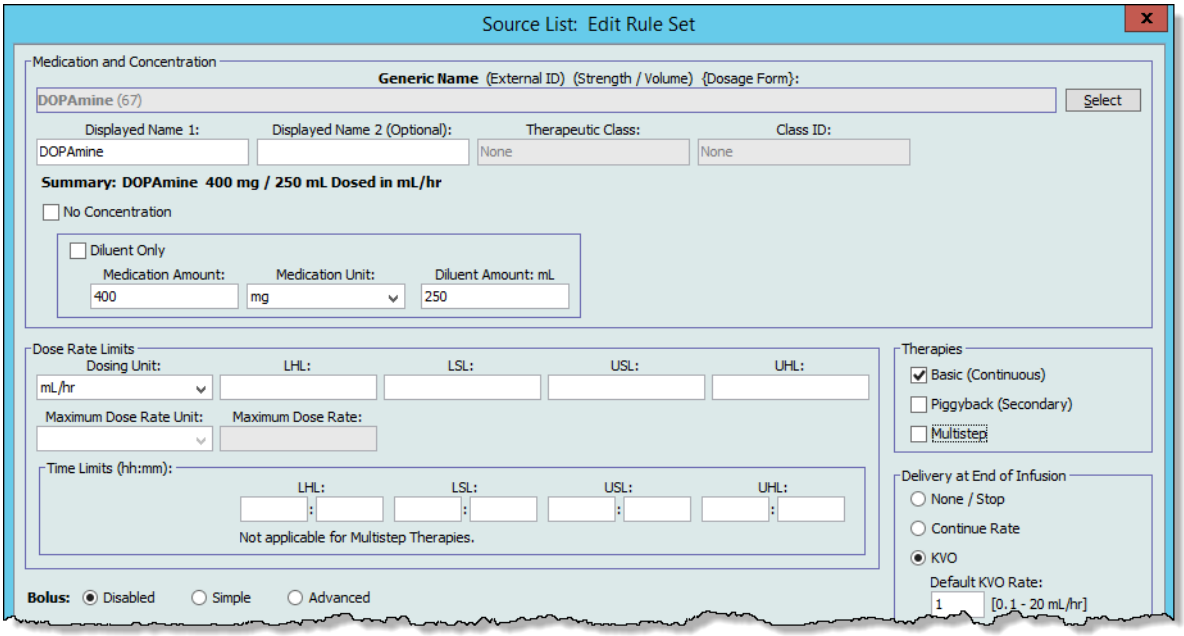
Note: Dose Rate Limits are optional but Dosing Unit must be selected.

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**.



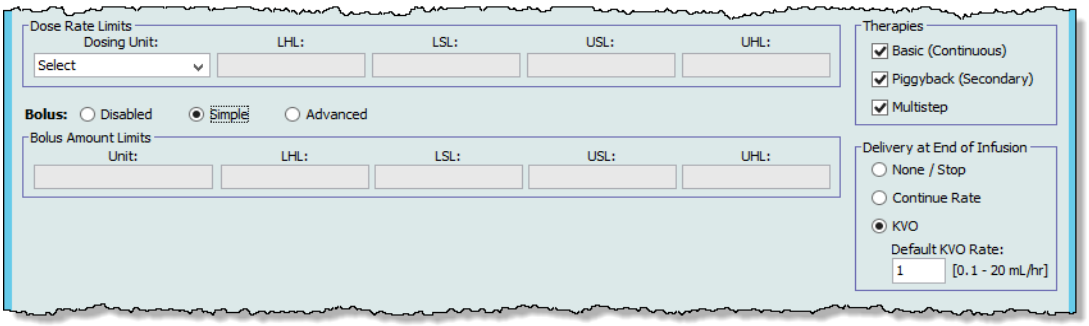
7. Select the **Bolus** option(s) if you want to set bolus dose limits for this medication (Optional). If you do not choose to set Enable Bolus, proceed to the next step.

Note: 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 Center.

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.

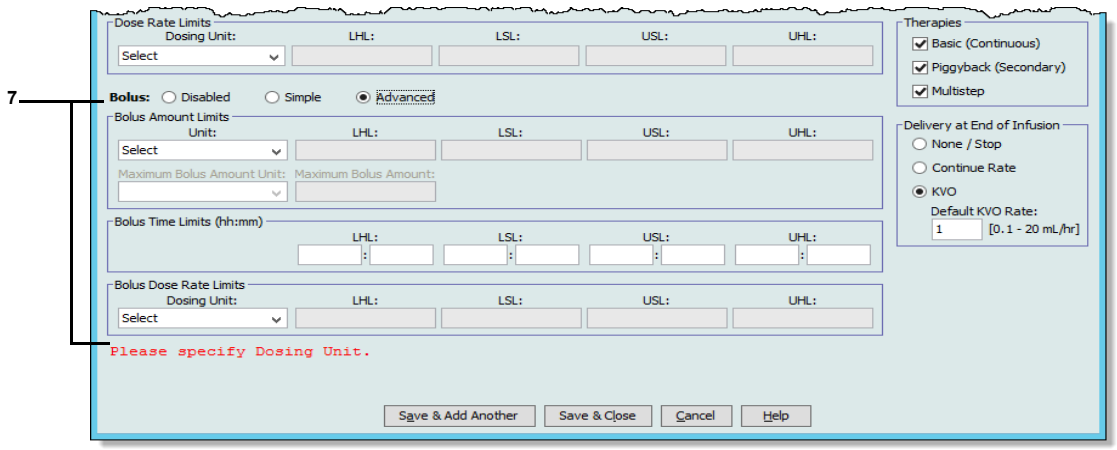


- **Advanced**. When the Advanced option is selected, the following fields are available:

a. **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.

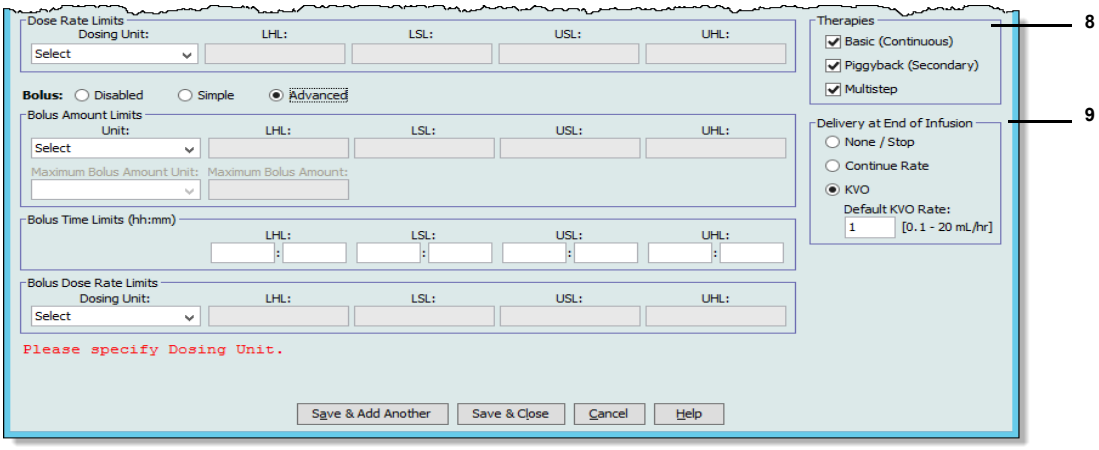
b. **Bolus Time Limits**: Lower Hard Limit, Lower Soft Limit, Upper Hard Limit, and Upper Soft Limit.

c. 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).



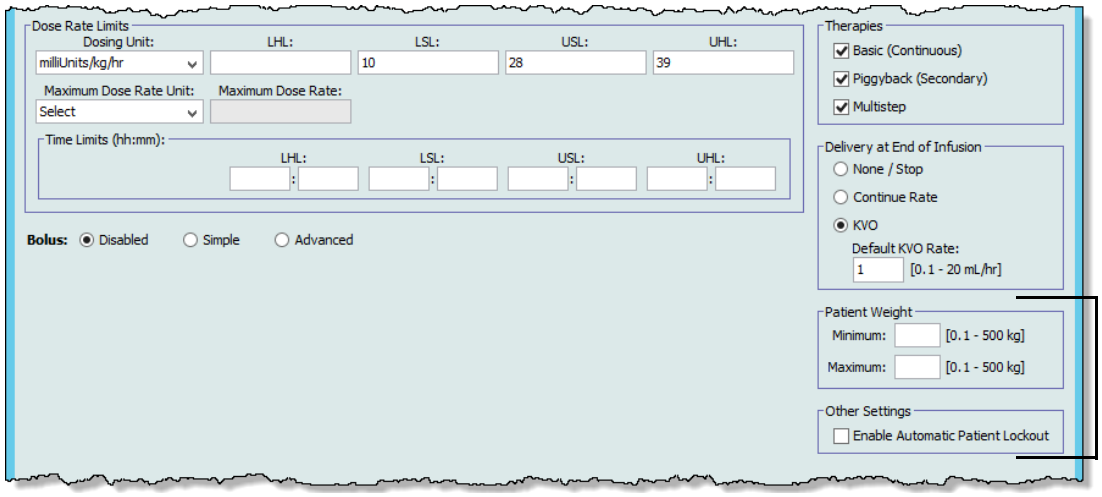
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

8. For **Therapies**, check or uncheck Basic (Continuous), Piggyback (Secondary), and Multistep, as desired.



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:



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.

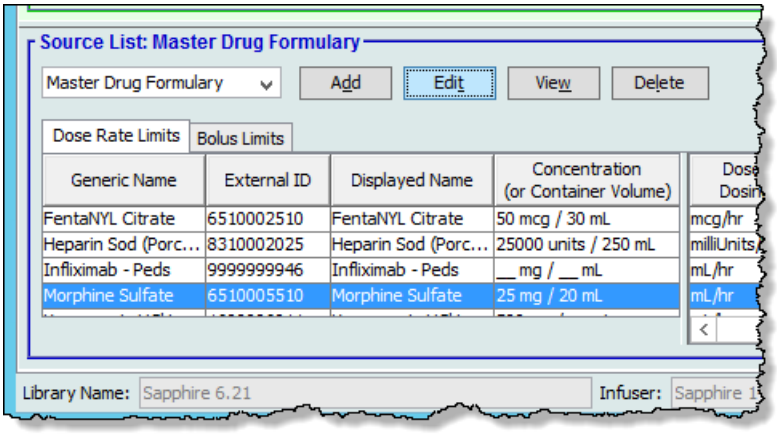
12. Click **Save & Add Another** or **Save & Close** to add the medication entry to the CCA.

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

Note: 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 Center.

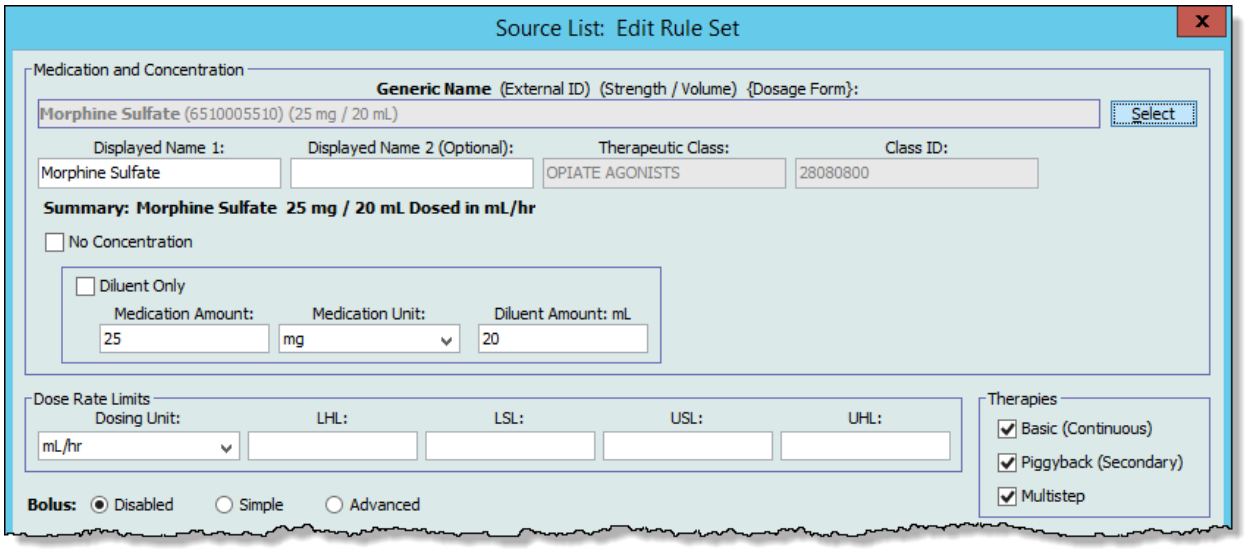
To edit a medication entry in the Master Drug Formulary:

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.



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

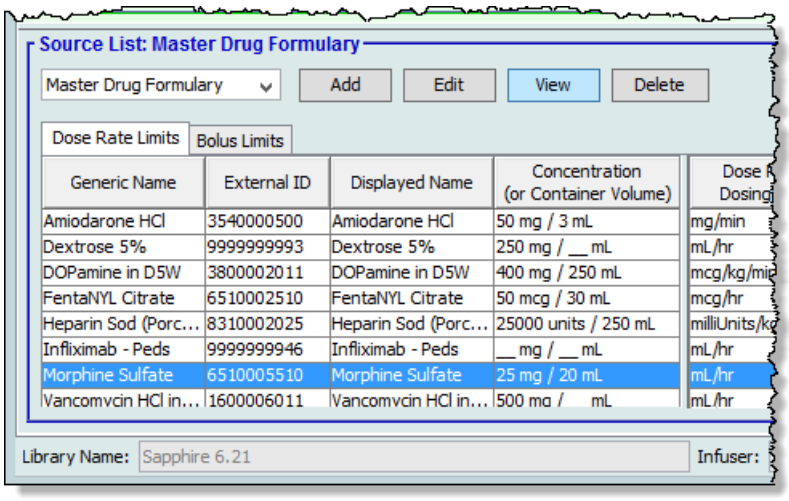
Note: When a medication entry is edited, the changes are reflected in the Master Drug Formulary and a pop-up displays the CCAs that are affected.

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.

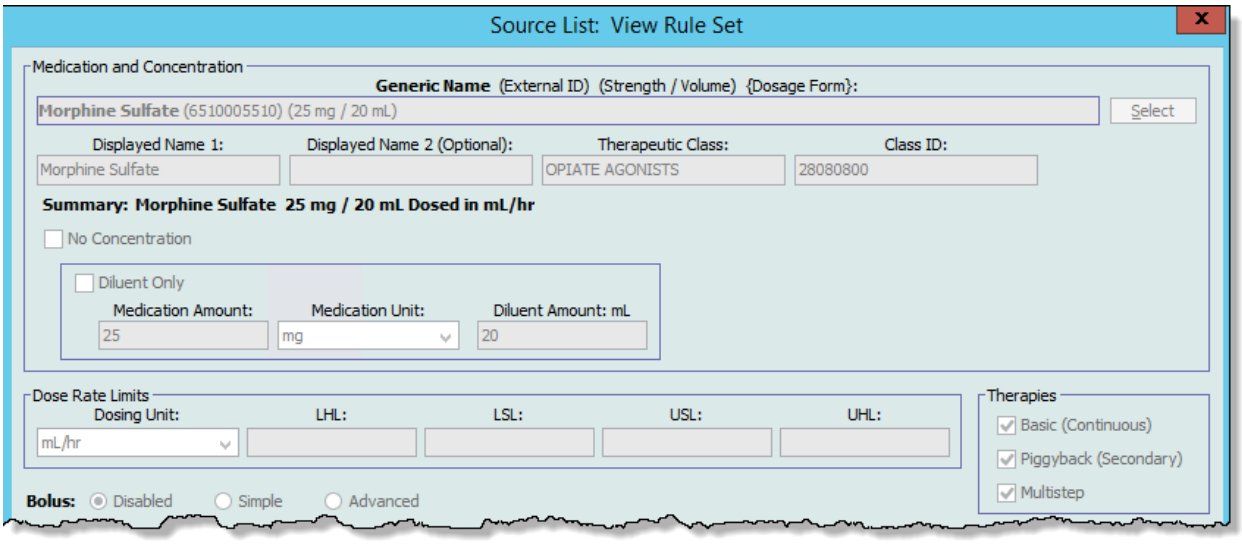
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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**.



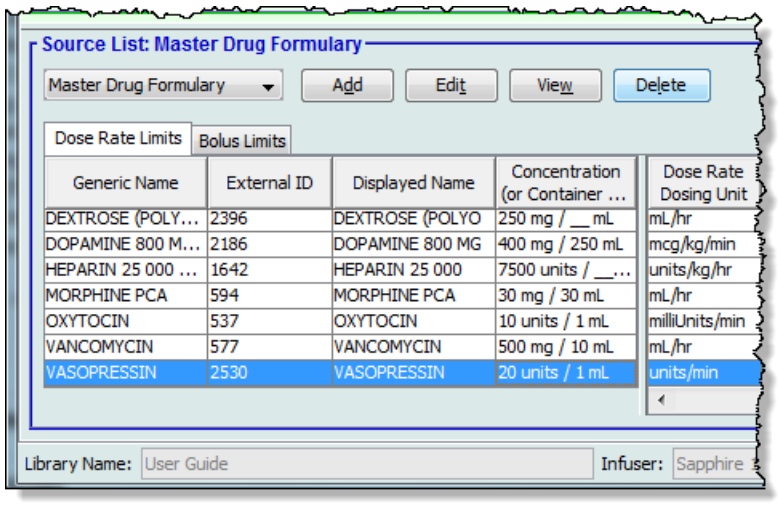
4. Click **Close**.



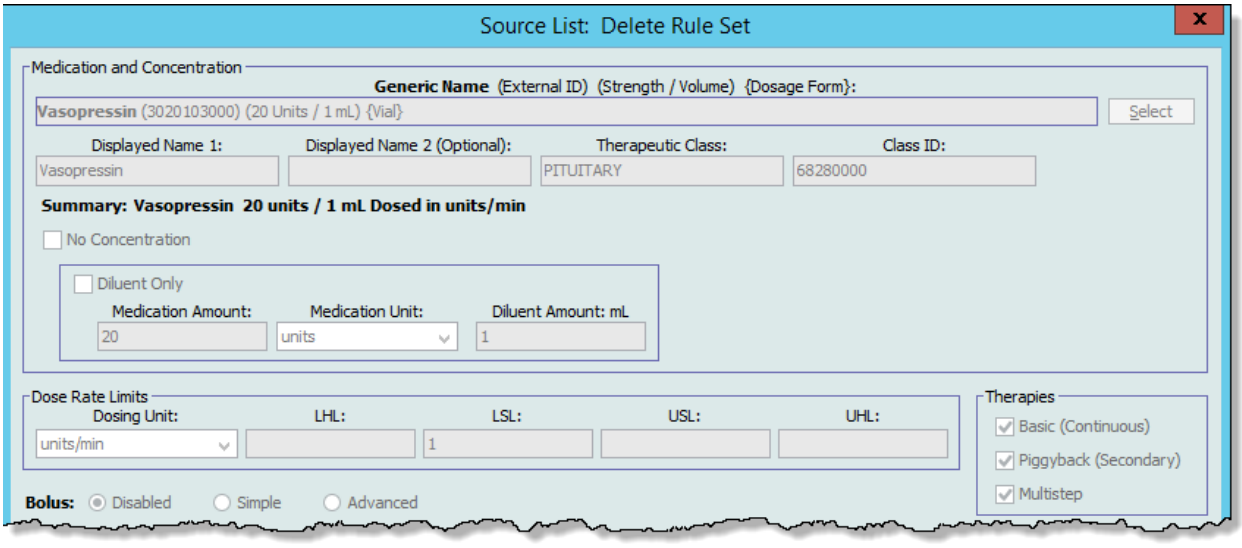
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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.



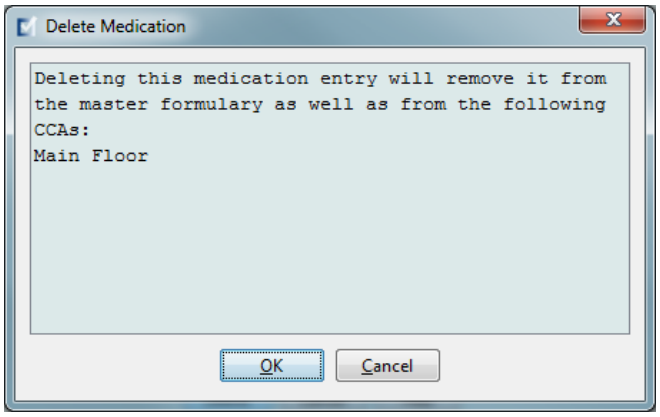
4. Click **Delete**.



Note: 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 Center.

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**.



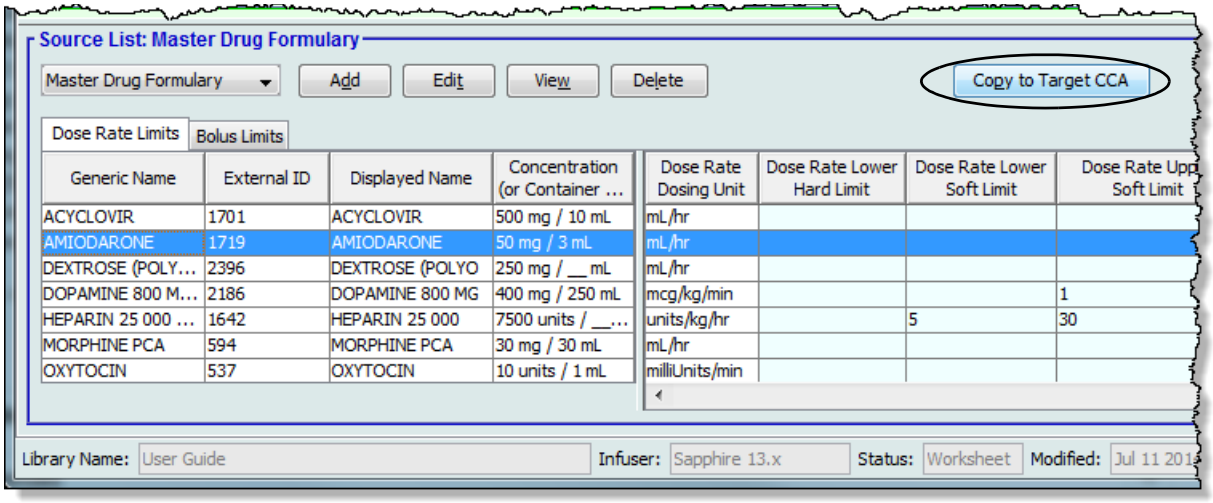
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

To copy to a Target CCA:

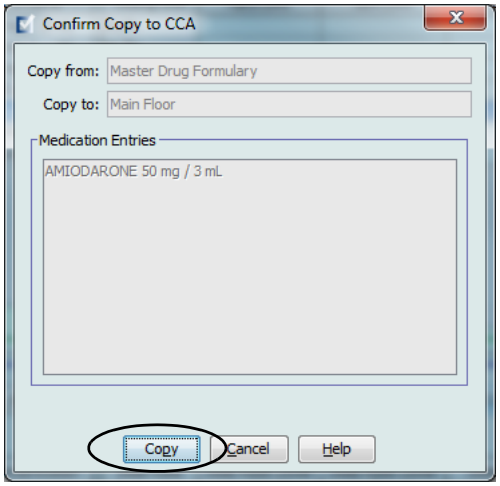
1. Select a medication entry from the Master Drug Formulary.

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**.



3. Click **Copy** on the **Confirm Copy to CCA** pop-up.



Note: 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 Center.

Notes:

Note: 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 Center.

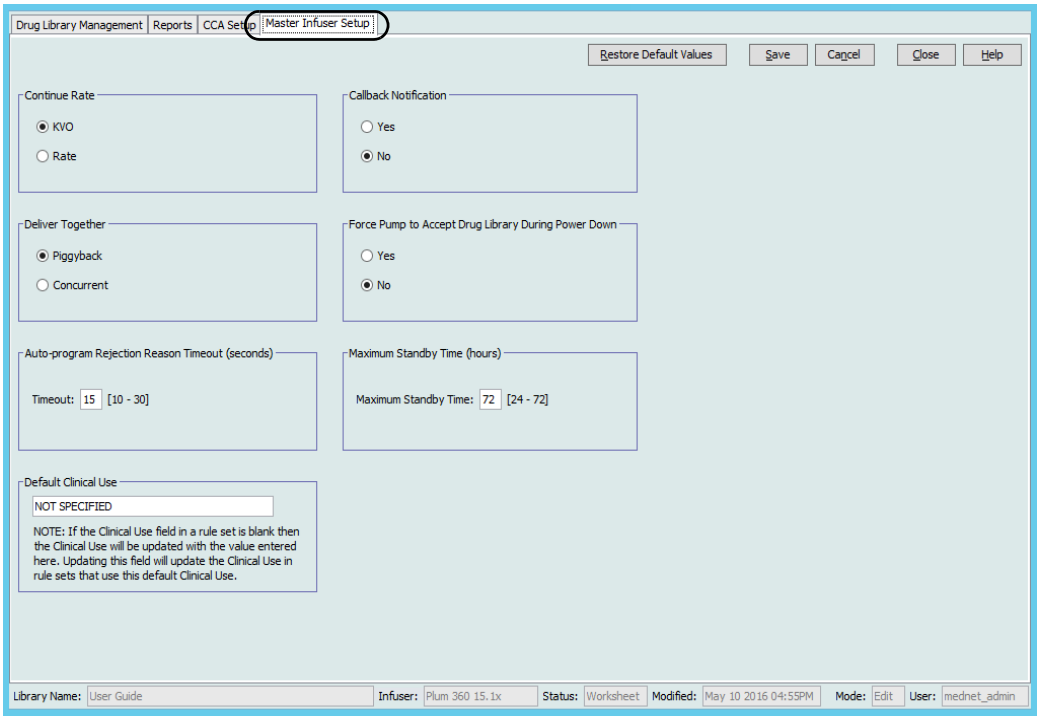
Chapter 13: Master Infuser Setup

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 33).



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.

Note: 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 Center.

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

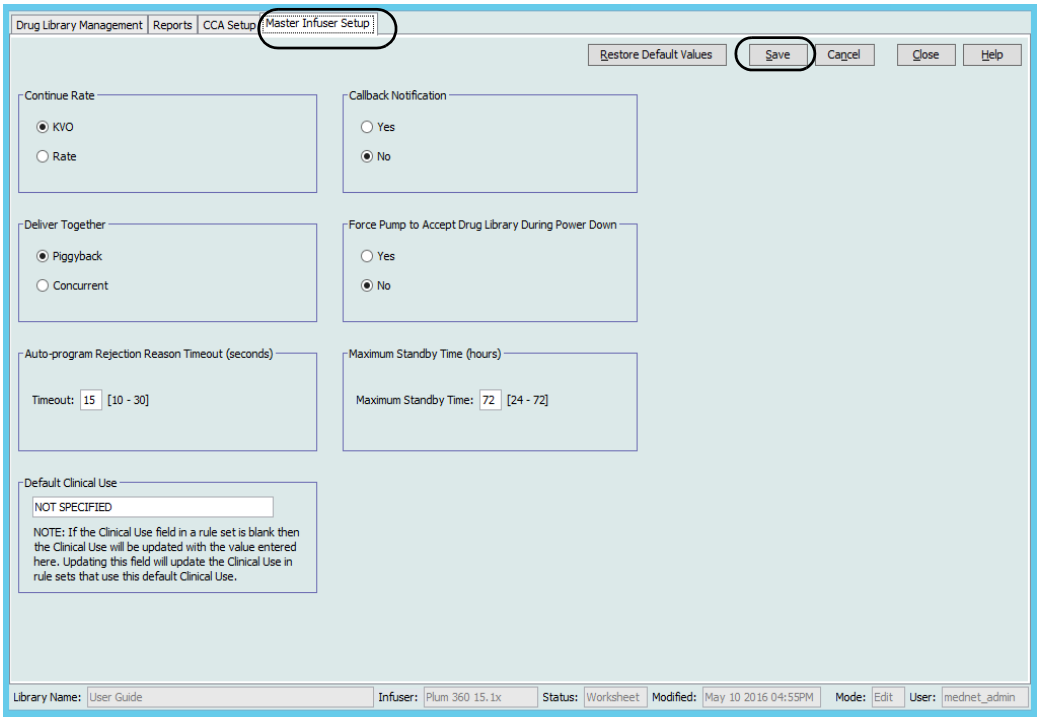
The *Default Clinical Use* setting allows you to change the "NOT SPECIFIED" value entered in a CCA to the Default Clinical Use you enter.

Note: The value entered as Default will be attributed to ALL entries marked "NOT SPECIFIED" in all CCAs and in the Master Drug Formulary.

Note: 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 Center.

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**.



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.

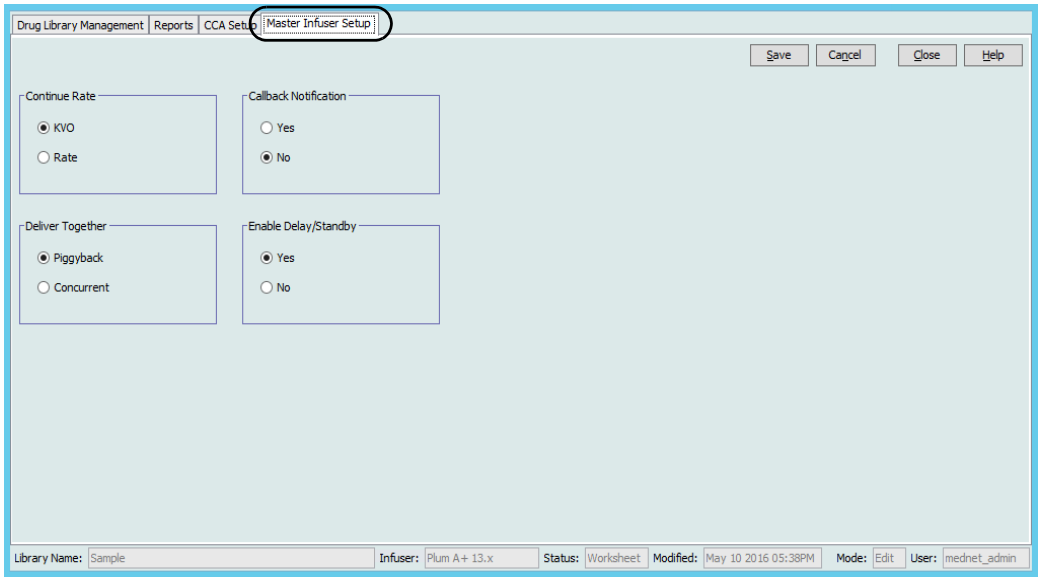
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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 33).



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.

Note: 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 Center.

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.

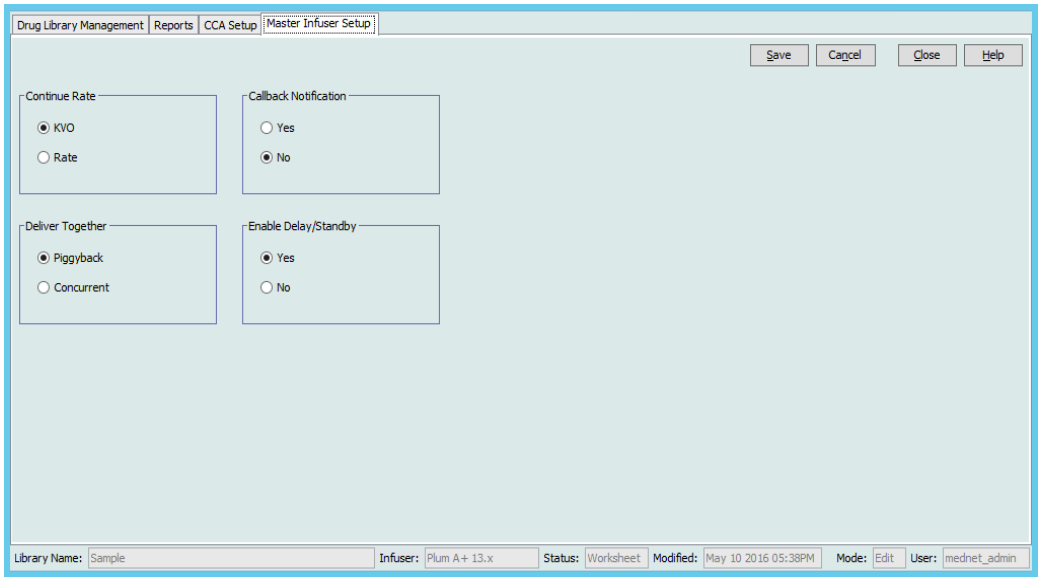
- Select **Piggyback** to make the default deliver together setting piggyback
- Select **Concurrent** to make the default deliver together setting concurrent

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.

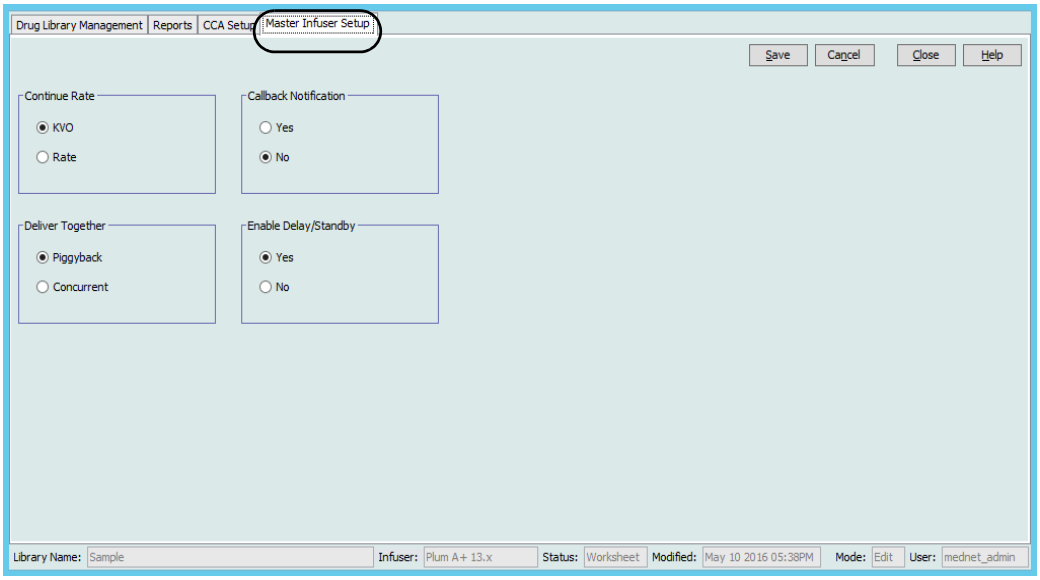
- Select **Yes** to enable Delay/Standby
- Select **No** to disable Delay/Standby



Note: 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 Center.

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**.



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.

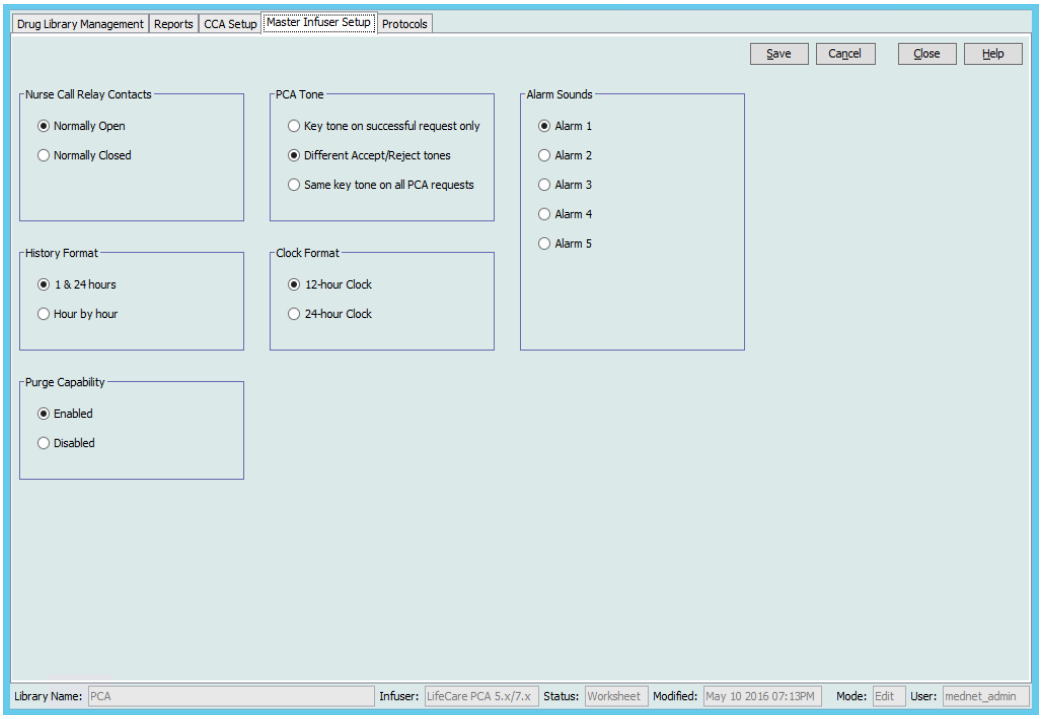
Note: For a list of ICU Medical MedNet compatible devices approved by country, refer to the ICU Medical MedNet Device Compatibility Matrix available through your ICU Medical Technical Support Center.

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 33).



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**.

Note: 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 Center.

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.

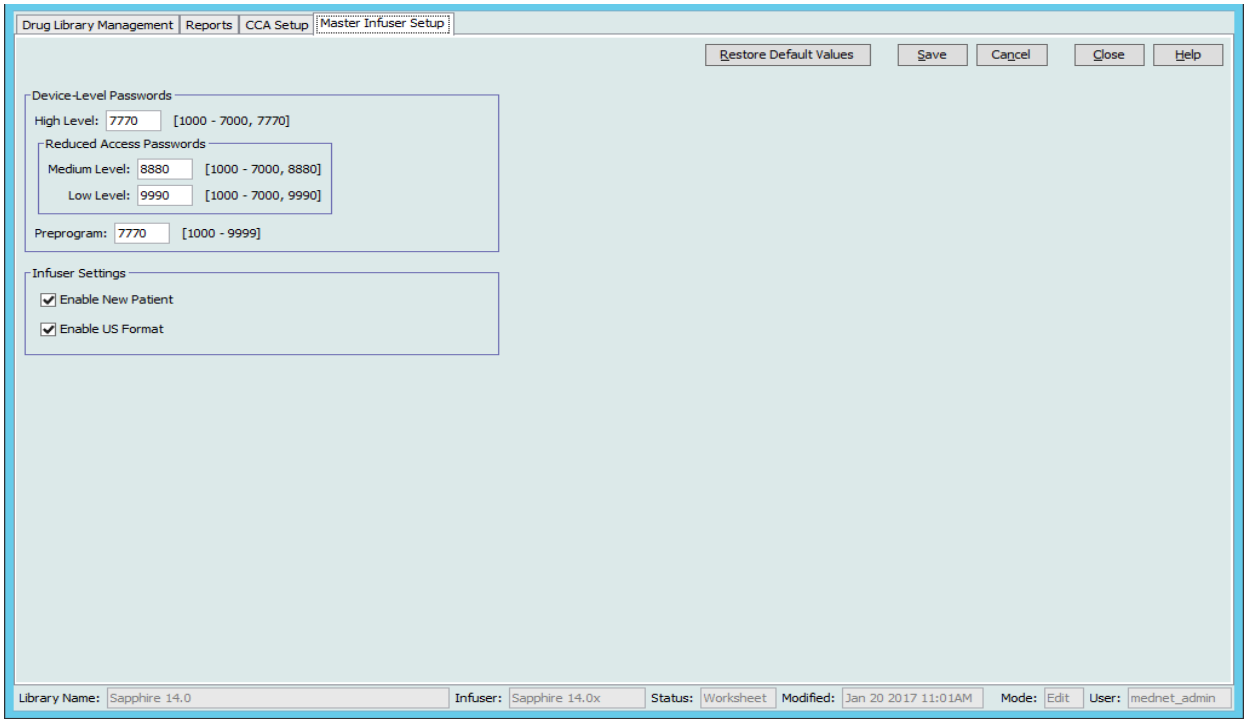
Note: To save changes to the master infuser settings, you must click **Save** before navigating away from the **Master Infuser Settings** view.

The selections made in the Master Infuser Settings view apply to all CCAs in the library.

Note: 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 Center.

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 device autorization 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

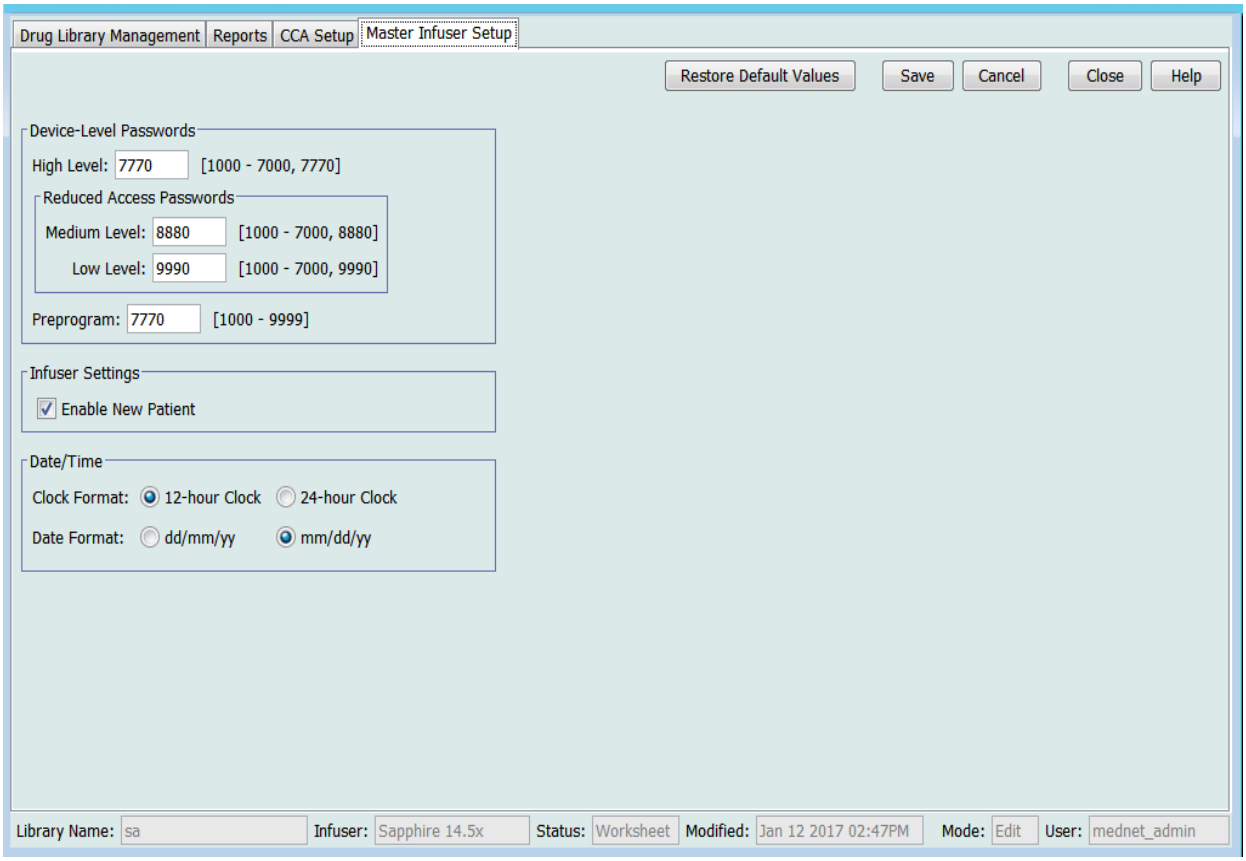
Enable New Patient is the default setting.

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.

Note: 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 Center.

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 autorization 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.

Note: 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 Center.

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).

Note: 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 Center.

Notes:

Note: 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 Center.

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.

Note: 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 Center.

Notes:

Note: 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 Center.

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 **Note:** 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.

Note: 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 Center.

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	Medication entries configured with a medication name, complete or partial concentration, and a specific dosing unit. 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

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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

Note: Please refer to the System Operating Manual for information on each infuser

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Notes:

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