Software Manual
for
MedsManager^{PE}

MedsManager Personal Edition

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Introduction

MedsManager is a small application that can provide estimated depletion dates of tracked medications, supplements, and supplies, and show current supply estimates using a simple bar graph and month calendar. Its personal edition can track up to 30 health consumables among up to three people and can provide links to the National Institutes of Health for public information on your prescribed medication regimen.

Medication regimen nonadherence is a huge problem in the United States. About half of the population is age 40 and older, and a weighted survey showed that three in four aged 50 and above have a chronic medication regimen. Only half of patients on chronic medication regimens adhere to them, resulting in higher care costs for all.

Everyone should have immediate access to their stock of medications, supplements, and testing supplies. We hope to improve adherence to medication therapies by helping everyone to know when they're running low in advance of depletion, to get them refilled before it's too late. We also believe that everyone should have access to information about their medication therapies *in languages they understand*; We hope to increase health literacy among patients and care providers, with special emphasis on assisting people with low English proficiency by including support for multiple languages.

To that end, I welcome you to MedsManager – an easy way to know what supplies you have on hand, anticipate when you need more, and to guide you to research about your medication therapies.

To your good health,

Tony Farrell,
Principal, VICTORY Codeworks
A VETERAN-OWNED BUSINESS

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Conventions Used in this Document

- Hyperlinks to external (Internet) content are displayed as conventional blue, underlined text.

  Example:

  > "Further information about SMTP codes may be found at https://en.wikipedia.org/wiki/List_of_SMTP_server_return_codes."

- Terms which may be found in the glossary or other references inside this document appear as red, underlined hyperlinks at first use. (As a convenient example, clicking on the term in the previous sentence will take you to the glossary.) References to specific sections will appear in bold.

  Example:

  > "Recall from the **Concepts** that MedsManager works by associating a person to each consumable item."

- Important concepts are prefaced with a triangular yellow symbol (resembling a traffic sign) with a black exclamation point within it. Some text may appear bold for added emphasis.

  Example:

  > **VICTORY Codeworks cannot decrypt your settings or files.** Only your device – specifically, the device that encrypted them – may decrypt your settings and files.

- Less important, "FYI" concepts are prefaced with a lower-case "i" inside of a circle. Think of these as if they're answering questions you may have.

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Example:

“Why do you need this stuff?”: Your email username and password are used to authenticate to your email provider’s servers.

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Concepts

MedsManager tracks consumables "spend" – that is, the rate at which items are consumed – using your responses to five basic questions about each item:

1. **What** is the consumable?
2. **Who** is its intended consumer?
3. **How much** is available in total?
4. **How often** is it to be taken?
5. **How many** are to be taken at a time?

Let's say Alice buys a bottle of multivitamin pills to take daily. For MedsManager to track these for her, it uses these inputs:

1. The consumable is **multivitamin pills**.
2. **Alice** the intended consumer.
3. The new bottle contains **60** capsules.
4. The vitamins are to be taken **once daily**
5. **One pill** is to be taken at a time.

MedsManager uses these factors to calculate and present a count of pills remaining, the date when Alice's supply is expected to be depleted, and a prioritized summary of which items require – or will soon require – attention.

The software uses a variety of features to collect the responses it needs. It has **People Settings** to determine whose items are to be tracked; it has **Meds Settings** to gather information about the consumables, their inventories, and their rates of consumption. It has **Email Settings** to allow the user to receive the work product.

Consumables information will arrive partially obfuscated in email messages you send, in much the same way pharmacies might refer to your medications in messages they send.

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Installation

MedsManager is a small desktop application designed to be installed to a Windows® device via Internet download. The installation information that follows assumes one has used an Internet-connected device with a browser to electronically purchase and download the software.

Installation Requirements

To install MedsManager, you will need:

1. A Microsoft® Windows®-compatible computing device (such as a personal computer, laptop computer, or tablet such as a Microsoft Surface®) running Windows 10® or above and having at least 4GB of RAM, and sufficient hard drive space to allow the computer to function normally (the size of the program is less than 10MB). [i]
2. An Internet connection on the device, through which a license key must be obtained during setup.
3. Account privileges on the device sufficient to connect to the Internet and to install software
4. Fewer than five minutes to perform the installation.

Installation Recommendations

Not required – but good to have:

1. An Internet browser, through which public information from the National Institutes of Health may be viewed. (Clicking on the INFO links by items designated as prescription medications opens the device's default browser).

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2. Removable electronic storage (such as flash drives) may be used to store encrypted backup copies of the health information files in a safe place separately from the computer, so that the data could be restored to the MedsManager software if needed.

   The data backups require the computer that encrypted them. Different computers create different encryption signatures, so data from one computer can only be restored to that computer. A different computer would not be able to decrypt the file.

   VICTORY Codeworks cannot decrypt your settings or files. Only your device – specifically, the device that encrypted them – may decrypt your settings and files.

3. An e-mail account, and knowledge of certain configuration values your email provider uses for setting up an e-mail client. MedsManager has an optional email capability for your exclusive use to send yourself summary information and calendar reminders. To use this capability, you must set it up in Email Settings.

   Your email settings are encrypted within the application. **MedsManager does not communicate or use them independently in any way.**

   The settings data requires the computer that encrypted it. Different computers create different encryption signatures, so data from one computer can only be restored to that computer. A different computer would not be able to decrypt the settings data.

   VICTORY Codeworks cannot decrypt your settings or files. Only your device – specifically, the device that encrypted them – may decrypt your settings and files.

   Your email settings are ONLY decrypted and used when YOU click the "Email this summary" button on the main form.

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Licensing

MedsManager Personal Edition is licensed to a single user for installation on a single computer. Upon installation, the application will attempt to contact the licensing server to retrieve a license key. The key will be generated in real time and sent to the software, where it will be recorded and encrypted with your settings.

MedsManager Personal Edition will not function without a valid license key.

Setup

Main Form

Main Form Menu

Settings Menu

People Settings

Recall from the **Concepts** that MedsManager works by associating a person to each consumable item.

You'll want to enroll a person before you set up their meds. Setting up a person only requires a nickname like "Dad", or given name, like "David." No surname is needed.

To enroll a person in MedsManager, Click **Settings > People Settings > Open People Settings**.

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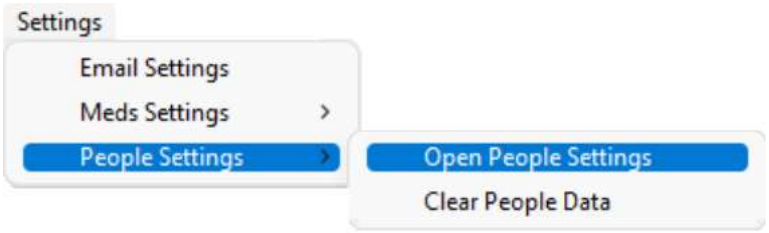
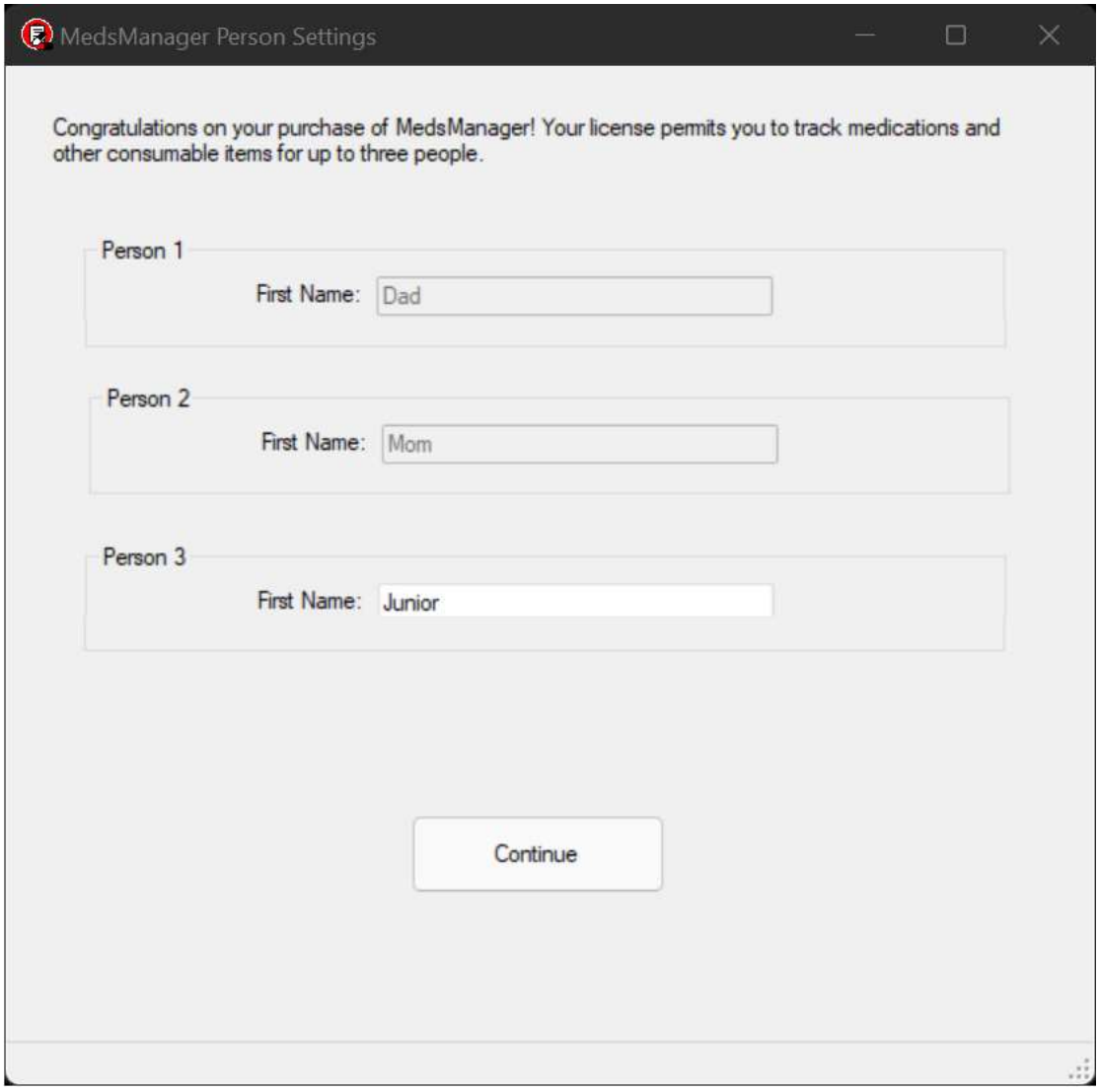


The person settings form appears with inputs for three people.



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"Why not refer to people as users?": An important distinction exists between a user and a person in MedsManager. The software has a single *user* – that's the person who licensed and will operate the product. But a *person* is someone whose medication regimen the software is tracking. In MedsManager Personal Edition, one *user* can monitor consumables for up to three *people*.

Email Settings

MedsManager allows you to send yourself email messages summarizing the status of the medications you track. "Send yourself" is meant exactly as read: you send these messages **yourself** using **your own email account information**. To open the email settings, navigate to **Settings > Email Settings > Open Email Settings**.

The email settings form is comprised of a series of fields related to your account with your email provider. One can often find these settings in their provider's documentation, or via an Internet search engine.

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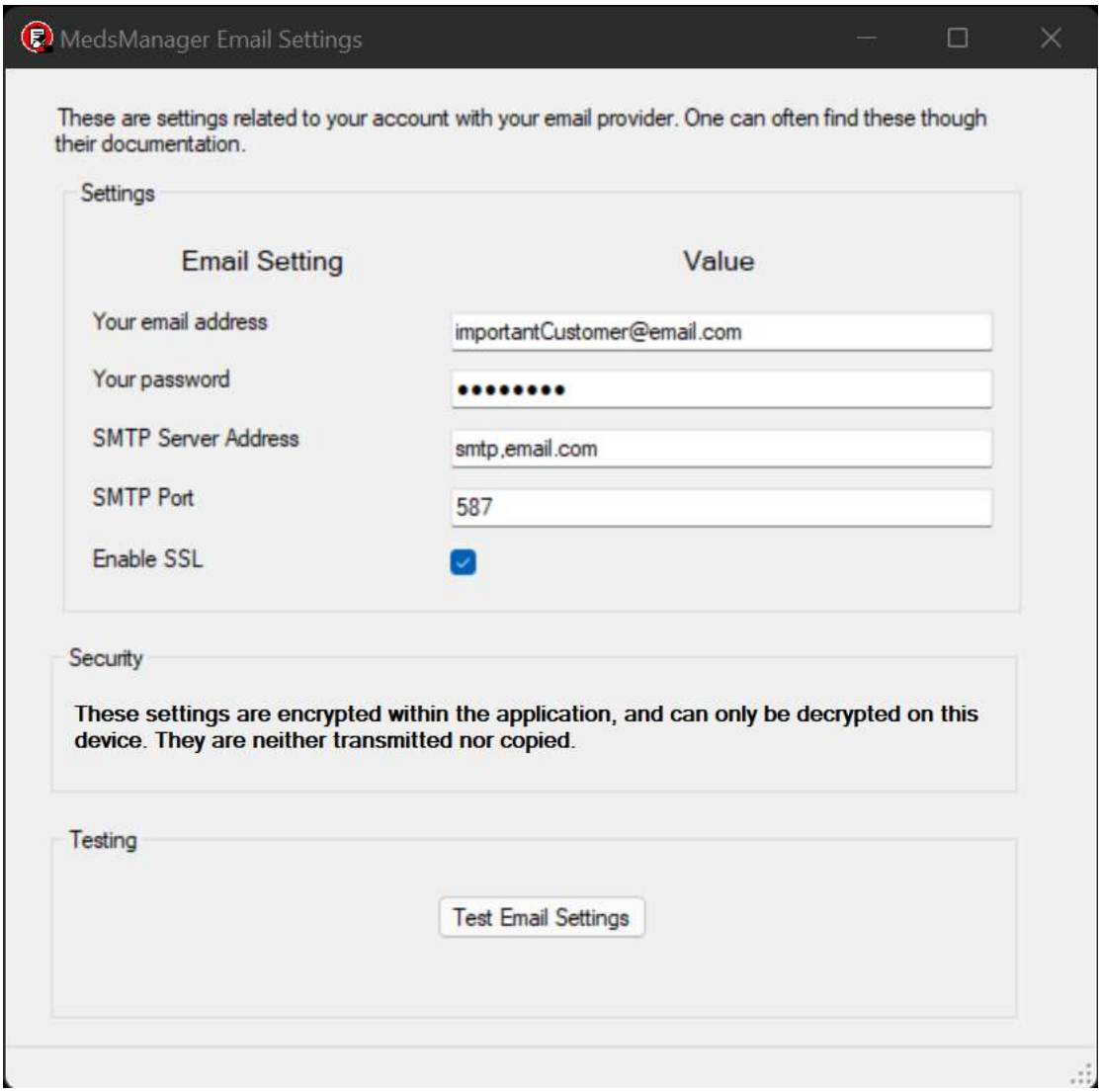

The fields are: Your e-mail address, your password for the email account, the provider's SMTP server address (commonly, "smtp.*yourserver*.com") the port the provider uses for SMTP traffic (commonly, ports 25, 465, or 587); and a checkbox to denote whether SSL encryption is required.

"Why do you need this stuff?": Your email username and password are used to allow MedsManager to authenticate to your email provider's servers and send the email message you requested. This authentication happens every time

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you click the “Email this summary” button on the main form – but you only set it up once.

⚠ Your email settings are encrypted within the application. **MedsManager does not communicate or use them independently in any way.**

⚠ **The settings data requires the computer that encrypted it**. Different computers create different encryption signatures, so data from one computer can only be restored to that computer. A different computer would not be able to decrypt the settings data.

⚠ **VICTORY Codeworks cannot decrypt your settings or files.** Only your device can decrypt them – specifically, the device that encrypted them.

⚠ **Your email settings are ONLY decrypted and used when YOU click the “Email this summary” button on the main form.**

⚠ VICTORY Codeworks is not responsible for the content or disposition of the message you create using the MedsManager software.

Email Testing

The Email Settings Form has a limited testing capability. Enter your settings and click the “Test Email Settings” button. The form will disable and the “wait” cursor will be displayed while the test is in progress. If the test succeeds, you’ll see an “OK” message appear beneath the button (and you’ll receive a test email, of course). If it doesn’t, a message and error code will be displayed. Some error messages may be quite long, so hover over it to display the complete message in a tooltip.

The end of this document contains a table of SMTP status messages that may be returned during testing. Further information about SMTP codes may be found on Wikipedia.[ii]

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Meds Settings

The heart of the MedsManager application is really the meds settings because all of the data and metadata about each consumable is created here.

The best time to work in Meds Settings is when a prescription has just been filled, because you can easily inventory the item – the quantity and consumption rates should be printed right on the label.

As previously mentioned, there is a strong relationship between person and consumable item. Items can't exist without a person. The meds settings form reinforces that premise by requiring a person be selected from a list atop the form before any items are loaded or even created.

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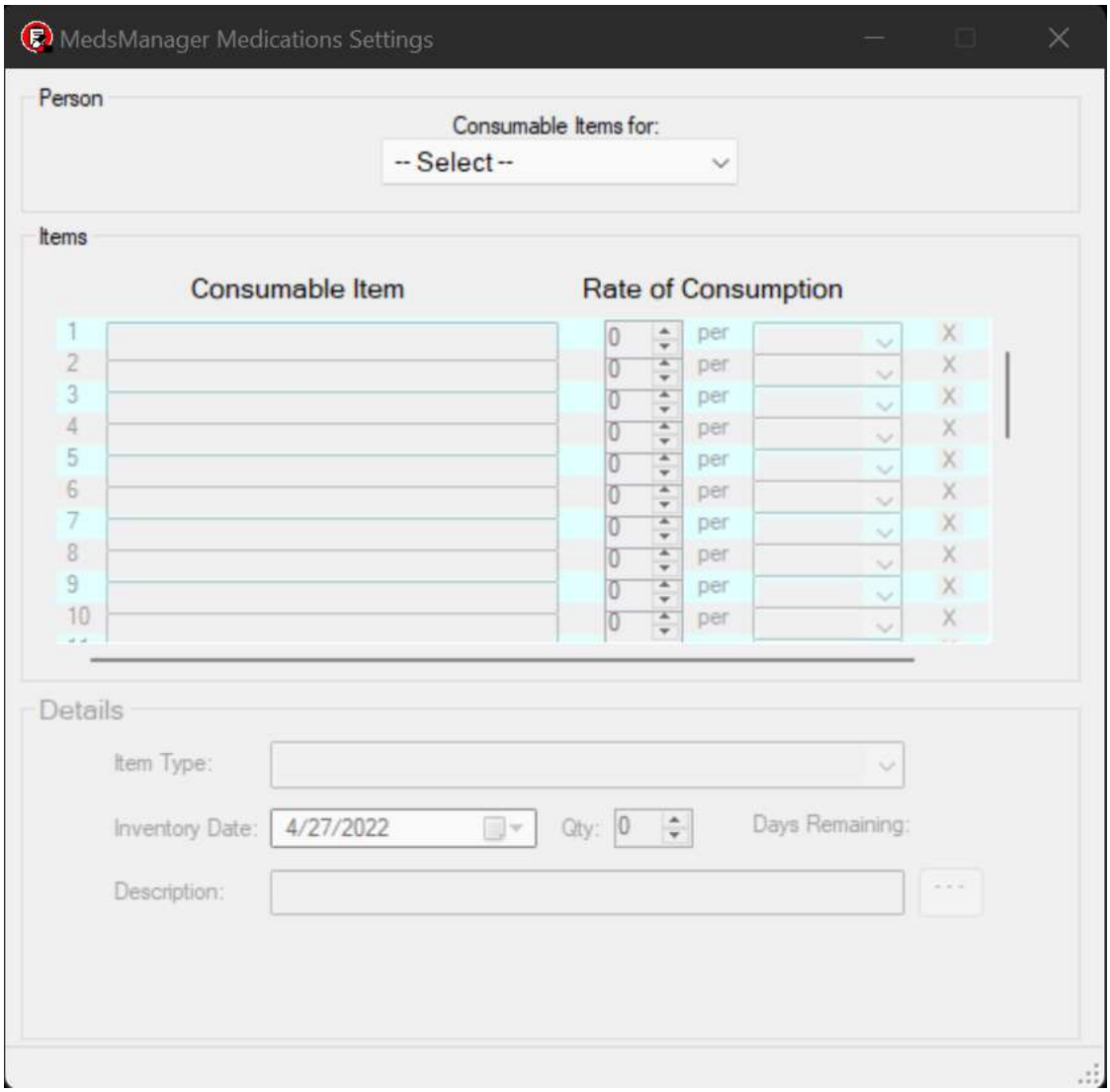
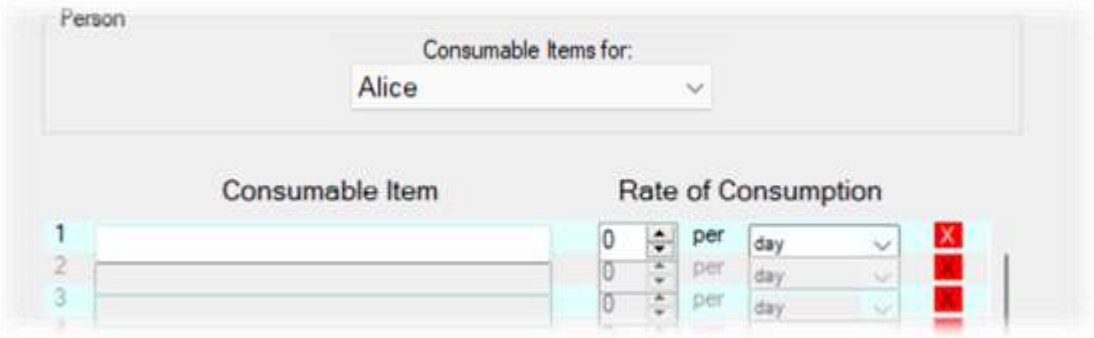


If no people have been added in **People Settings**, the form will direct you to enroll at least one person, after which you may return to Meds Settings.

Consumable Items Region

Selecting a person unlocks the items region – specifically, every row that already contains a record for the person, plus one more for a new record. If no records currently exist, the top row of controls will enable.



Each row contains four controls. The first, under the heading of Consumable Item, is for the name of the item. The second and third combine under the heading of Rate of Consumption. They are a number field (set at 0 by default), and a list of units ("daily", "weekly," and "monthly"). Together these are the response to the conceptual questions, "*How often is it to be taken*?" and, "*How many are to be taken at a time?*"

Let's say Alice buys a bottle of multivitamins to take daily. For MedsManager to track these for her, it uses these inputs:

1. The consumable is **multivitamin pills**.
2. **Alice** the intended consumer.
3. The new bottle contains **60** capsules.
4. The vitamins are to be taken **once daily**
5. **One pill** is to be taken at a time.

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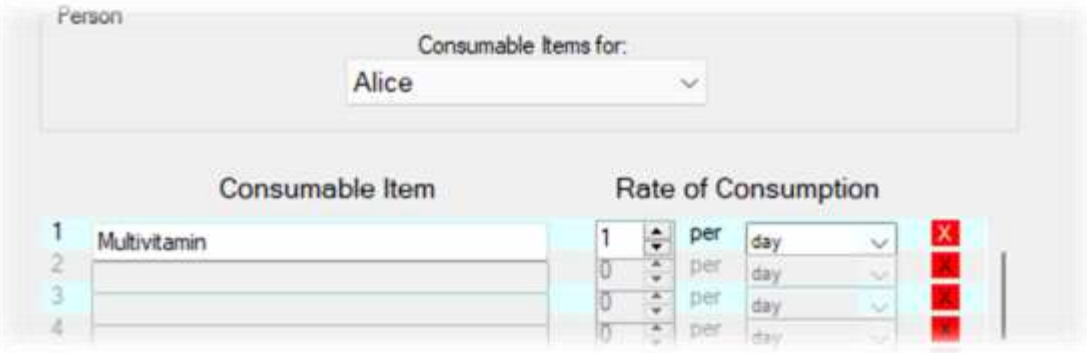
The items region is primarily concerned with what the consumable is, how many are taken at a time, and when they're to be taken. So the completed row would look like this:

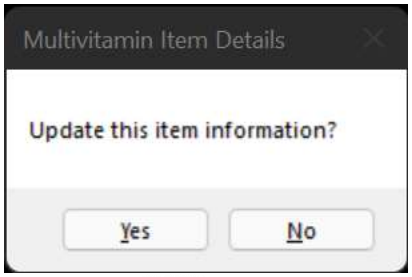


Alice now has a multivitamin associated with her – which she is expected to take one capsule of daily.

Item Details Region

Item metadata – like category, inventory, and description – appears in a details region which is below the table of items.

When an item is entered in the table, the user is given the option to enter inventory information for it right away.



Opting to do this unlocks the details region.

The Item Type List

The first control in the details region is the Item Type List: a dropdown list control which permits the user to categorize the new item as:

- Prescription Medication – a medication prescribed by a physician and supplied by a pharmacy. This is the default category.

- Over-the-counter (OTC) Medication – a medication openly available for purchase without a prescription, taken on a regular basis. Aspirin and other pain remedies are common examples of OTC medications which some include in their chronic regimens.

- Supplement – usually taken for general health or nutrition. Multivitamins, Zinc, Fish Oil capsules and about anything you'd find at a GNC belong in this category.

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- Supplies – items like lancets and test strips for diabetics which are required for testing; perhaps prescribed, and consumable only in the sense that they're purchased in finite quantities which will eventually exhaust.

Items designated as a prescription medication will have an INFO link appear on the main form. The INFO link points to a customized search of the U.S. National Library of Medicine Drug Information Portal, operated by the National Institutes of Health (NIH) of the U.S. Department of Health & Human Services.

Please ensure only actual prescription medications receive this designation. Attempts to search on items that aren't prescription medications may return unintended results.

VICTORY Codeworks is not responsible for NIH content.

The Inventory

The middle of the three lines of form controls handles inventory, and is comprised of a calendar control for selection of an inventory date for the selected item, and a number picker control for indicating how many doses there are of that item.

Recall the example with Alice. MedsManager works by answering a series of short questions. Our answers were:

1. The consumable is **multivitamin pills**.
2. **Alice** the intended consumer.
3. The new bottle contains **60** capsules.
4. The vitamins are to be taken **once daily**
5. **One pill** is to be taken at a time.

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If Alice bought that bottle today, the details region might resemble this:

Since the manufacturer reports there are 60 capsules per bottle, her inventory date is today and the quantity is 60. And because we know these capsules are to be taken once daily, Alice has 60 days of this supplement remaining.

The Description

The description field is a basic text field with something special at the end. The button with the ellipses ("…") reveals a description form, which allows one to build a description using choices of forms, shapes, colors, and imprints.

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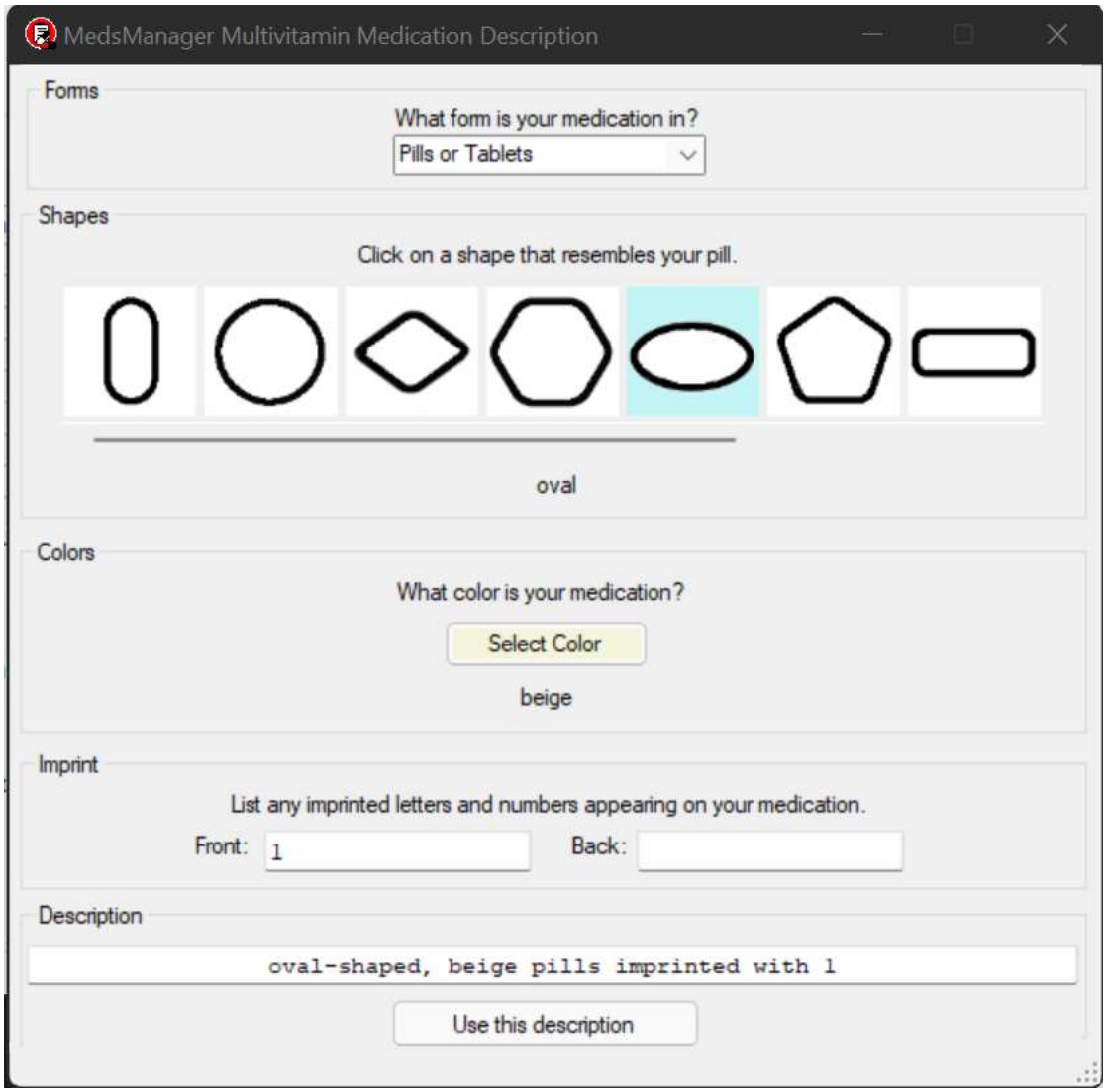

The description form leads the user through the process of describing traits applicable to the medication form (e.g., shapes apply to pills; they don't apply to liquids), which interactively fills in the description text at bottom. (The description field may also be edited directly.) Clicking the Use this description button closes the form and copies the description to the **Meds Settings** form.

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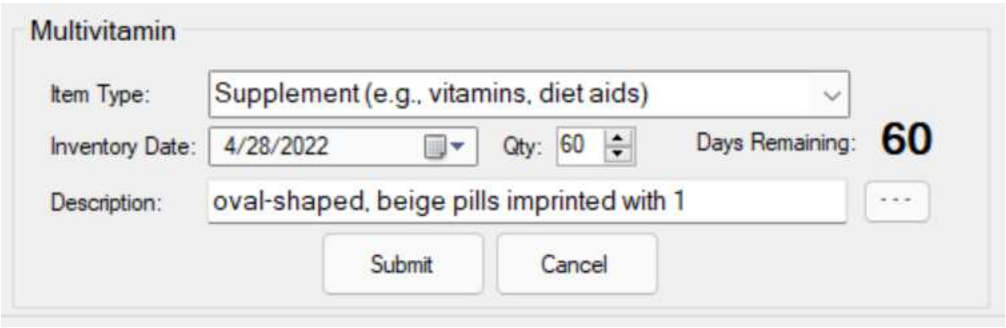


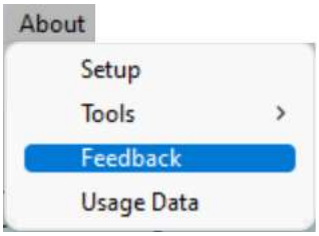
Using the description form is recommended, because the form will build a detailed description of the medicine. MedsManager has a **pill identifier tool** which compares search terms to item descriptions.

About Menu

Tools

Feedback

The software includes a simple feedback form. The form allows one to enter subject and body text. The button submits it to VICTORY Codeworks. Find the form by navigating to **About > Feedback**.



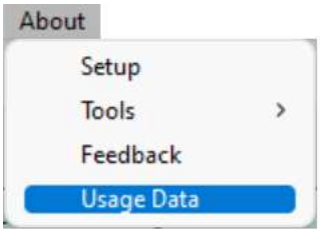
Usage Data

MedsManager was introduced in part to combat the epidemic of medication regimen nonadherence by giving people a tool they can use to track their medications and supplies. MedsManager is also interested in promoting patients' health literacy by curating public information regarding their therapies and medications.

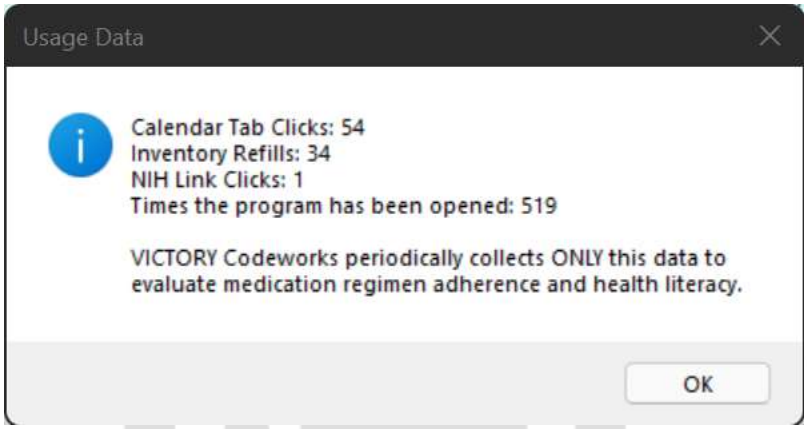
To help us understand how well these goals are being addressed, MedsManager collects specific, non-identifying data about how you use the software. This data is:

1. A count of the number of times the program has been opened.
2. A count of clicks on the Calendar and Graph tabs on the main form. We collect this information to help us understand whether you find the information presented thereupon useful. A low number of clicks, compared to the number of times the program has been opened, suggests the calendar view isn't often used.
3. A count of times the inventory of any item increases. A low number indicates one's consumables aren't being replaced, inferring one's prescriptions aren't being refilled. This is a sign of nonadherence. A high number, as compared to the number of times the program has been opened, may suggest regimen adherence.
4. A count of times any NIH INFO link is clicked. This is a potential sign of increasing health literacy.

MedsManager makes this data available for your inspection at any time through the menu. Simply navigate to **About > Usage Data**.



The usage data will appear in a message box, along with a reminder about why this data is collected. Click OK to close the box.



Although the data is collected continuously (every time the program is opened, ever time an INFO link is clicked, etc.), it'll be reported periodically (i.e., monthly, quarterly).

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Glossary

TERM	DESCRIPTION
B	Bytes. The smallest unit of measure used for describing the size of computer files. An empty file will have a size of 0B. See also: **KB**, **MB**, **GB**.
Capsule	A capsule is a form of oral medication in which the contents are enclosed – *encapsulated* – between two cylindrical, digestible sleeves which are closed at the ends. The medicine is released as the sleeves are dissolved in the stomach. Additional information about SMTP may be found on Wikipedia. [iii]
Consumable	Any prescription medication, supplement (like vitamins), or health supplies (like diabetes testing lancets and strips) that one uses regularly until the item is exhausted, like a bottle of 90 vitamins or package of 100 lancets. These are consumables in the sense that one uses them up, and the supply must be replaced.
Consumables Spend	The rate at which medications, supplements, and supplies are consumed.
Desktop Application	A desktop application is a program installed on a computer or laptop, as opposed to a mobile application (commonly called an “app”), which is downloaded and installed on a smartphone.
Device	In this context, a personal computer (PC), laptop computer or tablet computer, onto which you will install and use the software.
Drops	A form of medication designed for absorption into the eye.
GB	Gigabytes. A unit of measure commonly used for describing the capacities of random access memory modules and electronic storage devices (like hard drives) greater than 999MB. See also: **B**, **KB**, **MB**.

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Health Literacy	One's knowledge about their overall health, and component therapies, so one may care for oneself and recognize when attention is needed. See also: **Prescription Regimen**
Imprint	Some solid forms of medication may be imprinted with identifying letters and numbers. Capsules and pills with coatings may have the characters printed on them; pills without coatings may have the characters stamped into them.
Inhaler	A form of medication designed for absorption by the lungs, through breathing.
KB	Kilobytes. A unit of measure commonly used for describing the size of computer files greater than 999 B. For reference, the sizes of the medical information (.med) files are typically measured in KB. See also: **B**, **MB**, **GB**.
License Key	A pattern of characters (letters and numbers) that is given to an authorized software purchaser. It certifies that a copy of a program is original and unlocks a software product to make it available for use.
MB	Megabytes. A unit of measure commonly used for describing the capacities of storage and sizes of files in excess of 999KB. For reference, the MedsManager program is less than 10MB. See also: **B**, **KB**, **GB**.
MED (.med)	Data files MedsManager creates to store and perform operations on your consumables information. Backups of these files are always stored with a .med suffix.
NIH	The National Institutes of Health of the U.S. Department of Health & Human Services
Nonadherence	The act of ignoring or disobeying. In context, failing to comply with one's chronic medication regimen, either willfully or as a function of

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	circumstance. Examples of nonadherence include failing to fill prescriptions and failing to take medications as prescribed. Motivations for willful nonadherence are varied but may include distrust of one's medical advisor or advice and disbelieving the need for medications. An example of circumstantial nonadherence is inability to afford medications or healthcare. See also: **Prescription Regimen**
Obfuscation	The act of obscuring or hiding information to protect it. Example: "ALOG****N" may be substituted for the full name "ALOGLIPTIN" in unprotected communications to make its full name unclear to others.
Over-the-Counter (OTC) Medication	In the context of a regimen, medication openly available for purchase without prescription, taken on a regular basis. Aspirin and other pain remedies are common examples of OTC medications sometimes included in chronic regimens. See also: **Prescription Regimen**
Person	Someone whose medication regimen is tracked by MedsManager. Distinct from **User**.
Pills or Tablets	A common form of oral medication designed for ingestion. Unlike **capsules**, pills are medicines combined with inert ingredients and stamped into various shapes using molds, and may be dyed different colors and imprinted with identifiers. Contrast with **sublingual tablets**. See also **Imprint**
Prescription Medication	Medication prescribed by a physician and supplied by a pharmacy. See also: **Prescription Regimen**
Prescription Regimen	A course of action, typically involving health consumables, prescribed by a physician for a patient to follow on a continual basis to maintain or improve some aspect of the patient's health. Also referred to as chronic prescription regimen or medication therapy.

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RAM	Random Access Memory. These are modules installed inside a computer which allows information to be processed. Typically, higher RAM capacity equates to faster processing. The MedsManager software was tested on machines with between 4GB and 24GB of RAM. See also: **GB**.
SMTP	The Simple Mail Transfer Protocol (SMTP) is an internet standard communication protocol for electronic mail transmission. Mail servers and other message transfer agents use SMTP to send and receive mail messages. Additional information about SMTP may be found on Wikipedia. [iv]
Sublingual Tablets	A form of oral medication which delivers medicine by placement beneath the tongue, instead of ingestion. The tablets, which may be similar in appearance to normal pills, are intended to dissolve in the mouth. Contrast with **Pills or Tablets**.
Supplement	Substances usually taken for general health or nutrition. Multivitamins, Zinc, Fish Oil capsules and diet aids taken as part of a regimen belong in this category. See also: **Prescription Regimen**
Supplies	In the context of a regimen, items like lancets and test strips for diabetics, which are required for testing; perhaps prescribed, and consumable only in the sense that they're purchased in finite quantities which will eventually exhaust. See also: **Prescription Regimen**
Suppositories	A form of medication designed for absorption by insertion into the rectum.
Tooltip	A small pop-up message typically displayed when hovering a mouse pointer over an object.
Topical Medicines	A form of medication designed for absorption through the skin. Commonly, creams.

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User	The person who licensed the product is the user. Distinct from **Person**.
VICTORY Codeworks	The company that created and owns the rights to MedsManager

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Email Settings Error Codes and Troubleshooting Guide

A subset of SMTP Status Codes one may see while configuring email settings. This is not an exhaustive list.

STATUS CODE	DESCRIPTION
-1	*General Failure*. The transaction could not occur. You receive this error when the specified SMTP host cannot be found. If this status is returned quickly, confirm the SMTP server value. If this status takes a long time to return, confirm the SMTP port value.
421	*Service Not Available.* The SMTP service is not available; the server is closing the transmission channel.
450	*Mailbox Busy*. The destination mailbox is in use.
452	*Insufficient Storage*. The SMTP service does not have sufficient storage to complete the request.
454	*Client Not Permitted.* The client was not authenticated or is not allowed to send mail using the specified SMTP host. You may not be authorized to use SMTP with your provider.
530	*Must Issue Start TLS First*. Either: (a) the SMTP server is configured to accept only TLS connections, and the SMTP client is attempting to connect by using a non-TLS connection, or (b) the email address is incorrect and authentication failed. Resolve (a) by checking the Enable SSL box and/or (b) ensuring the email address is correct.
550	*Mailbox Unavailable*. The destination mailbox was not found or could not be accessed.

Source: Microsoft

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