



EMR INTEGRATION OVERVIEW TO MDSCRIPTS DISPENSING SYSTEM

OVERVIEW OF INTEGRATION FOR EMR
SOFTWARE PROVIDERS

Version 1.1

March 18, 2008

8930 STATE ROAD 84, STE 222
DAVID FL 33324

REVISION HISTORY

Date	Version	Author	Comments
Feb 12, 2008	1.0	Theo Antoniou	Initial document
March 18, 2008	1.1	Theo Antoniou	Added more information about available calls

NOTE:

MDScripts™ is a software platform written and maintained by Cranking Software Inc, a Florida based software engineering firm. The software platform is re-branded by key strategic partners to provide a software dispensing solution. Cranking Software does not market the software directly to physicians and considers itself a provider of software technology for the physician dispensing market. Cranking Software provides software solutions for other industries outside the medical community.

Our partners are free to promote the re-branded software for their business and relationships, so the branded names are used interchangeably with the MDScripts™ “house” brand.

INTRODUCTION

MDScripts is a prescription dispensing system used by physicians in their offices. Physicians, in this case dispensing practitioners, use MDScripts to prescribe, dispense, print pharmacy labels, and track medication inventory. Many doctors that dispense also have a separate EMR system which is used for the non-dispensing aspects of their medical practice. Dispensing practitioners wish to save time, reduce steps, and minimize the chance of dispensing errors therefore a EMR to MDScripts interface is a common request.

This document is an overview of the interface between the MDScripts software system and EMR software. It is intended to provide a high level description of the method or architecture used to couple the systems together.

Why should EMR's invest in supporting this interface, specifically with MDScripts? There are many EMR solutions on the market and providing this capability to a physicians practice is a distinguishing feature for an EMR product. Physicians can earn additional income from dispensing medications therefore providing the capability is a selling point. The interface is a simple and quick way to provide dispensing capability to your EMR customers without the additional development, test and support costs to your EMR company.

Why MDScripts? MDScripts supports the dispensing of several repackager's medications. All of the other dispensing software solutions provided by repackagers limit the physician only a single repackager. You (the EMR company) would be limiting the physician to a specific repackager. MDScripts is also free.

Why haven't EMR companies added dispensing to their EMR software solution? A quick analysis of physician dispensing software requirements by an experienced software developer will deter any sane business person from jumping into that project. Physician dispensing laws vary state by state so even before starting, there is significant investment needed. MDScripts is free with instant access from the website's home page.

Our objective was to provide an EMR to MDScripts interface that could be easily implemented by EMR companies. After speaking to many physicians with different EMR solutions, we came to the conclusion that making EMR companies change their software to support physician dispensing was going to be a challenge. EMR companies did not want to front the cost of development. EMR companies would quote from \$20K to \$100K to implement the change for the physician. This was beyond what any of the physicians we spoke to were willing to pay.

A few EMR companies indicated that if HL7 was used, the development cost would be much lower since they already supported this interface. (See <http://www.hl7.org>) Unfortunately HL7 is not capable of supporting all of the physician's requirements between the EMR and a dispensing system. Without a long technical discussion about HL7, the fundamental problem is that HL7 supports medical/prescription information but does not support dispensing information (NDC, lot number, expiration dates, rx numbers, claim information) nor does it support medication inventory data. It is true that HL7 has special "user defined" messages where we could make up messages and then fit a square peg in a round hole, but other technical issues detract from the HL7 approach. Those technical issues are beyond the scope of this article, but interestingly enough we later discovered that there are many EMR solutions that do not support HL7.

OVERVIEW

The MDScripts system is a web application with an HTML user interface. This model, sometimes referred to as an ASP model, requires few resources at the dispensing locations other than an Internet connection and a good web browser. Almost all of the user interface is HTML based except in situations where CSV data is outputted for data exports and reports. In those situations, the browsers default handler for CSV files, typically Microsoft Excel, is launched and displays the data. If a site does not have a spread sheet program like Excel, they can download OpenOffice, a free office software suite.

EMR software is also sometimes web based, but we typically find EMR software as a Microsoft Windows based application. (Either standalone or client/server architectures running on site's LAN.)

The MDScripts system supports an API through which an EMR software application can easily authenticate and link a user right to the dispensing process. A URL encoded link specifies the data to pop-up a browser page and leap the user into the dispensing process with all the patient information pre-populated.

EMR's add these links to their user interface and the MDScripts system takes care of all physician dispensing aspects from there on. Each link in the API has some basic information to identify the site and authenticate the user.

All URLs have to have this minimum URL information:

<https://www.mdscripts.com/dis/servlet/dis.Main?siteId=siteId&cu=username&p=password&n=RemoteLogin>

The portion of the link before the “?” symbol is the protocol, domain and path to the MDScripts application. This part of the URL never changes.

There are 4 name-value pairs after the “?” in the URL.

1. **siteId:** This is an integer that uniquely identifies the location that is doing the dispensing. Typical siteId's are 5 digits and look like “15394”. Administrators of the EMR software should set the siteId parameter once and never have to change it.
2. **username:** This is an alphanumeric that identifies the user at the site. This must be an established account in the MDScripts dispensing system. The EMR system can either support a single username, or provide for each user to enter a unique username. The latter is preferred since the MDScripts system logs a lot of activity on a user by user basis.
3. **password:** This is an alphanumeric that authenticates the user with the system. Together with the siteId and username, the three parameters authenticate the user with the system.
4. **n :** represents the screen name, in this case RemoteLogin. This parameter never changes for any of the URLs.

Note: All parameter names and values are case sensitive, URL encoded strings. This means that if a user selects a password of “Let Me In”, the URL would have:

...&password=Let+Me+In&....

since the “+” symbol is the URL encoded character for a space. If the siteId, username and password do not correctly authenticate the user, the user will see the login screen. If the user gets authenticated and no other parameters are passed in the URL, the user will see the Home page.

Obtaining a siteId, username and password is a quick and instant process. Visit <http://www.mdscripts.com> and click on Instant Access to register.

SHOWING INVENTORY:

Use the following URL to show a site's medication inventory levels:

`https://www.mdscripts.comsiteid=siteId&u=username&p=password&n=RemoteLogin&target=ShowInventory`

This link is simply the basic link discussed in previous section with the name-value pair

`&target=ShowInventory`

added to the end of the URL. This URL will authenticate the user and then bring the user to the medication inventory screen. (You probably guessed that substituting “ShowInventory” with “ShowPatients”, “ShowEmployers”, or “ShowReports” will result in the user being taken directly to those screens.)

DISPENSING:

We have shown how links can be used to automatically access predetermined screens in the MDScripts system by formatting up a URL with a few parameters to route the user to the appropriate screen. Next is how to dispense to a patient without having to re-key information about the patient and prescription. This is done through the target ShowCart and parameters describing patient and prescription information. For example,

`&target=ShowCart&firstName=John&lastName=Doe&address=123+Main+St`

takes the user to the dispense screen with the patient's first name, last name and address. The link should also contain the parameter “patientId” which is the EMR's patient id so that MDScripts can update patient information instead of creating a new patient. There are over 30 patient related fields which can be passed in this manner to cover date of birth, phone numbers, and so on. Listing all of the parameters is outside the scope of this overview.

Besides patient specific information, the next group of information that needs to get passed over in the link is the prescription specific information. Let's us discuss some aspects of prescription and medication information. If you ask a typical patient what a prescription looks like, they will probably tell you it's a small container with pills in it. In our systems, we associate the term “prescription” with the piece of paper that the physician writes on. (Or representation thereof) A prescription is used to dispense a “medication” to the patient. This distinction between “prescription” and “medication” needs to be understood when dealing with dispensing systems.

Prescription data consists of what is typically found on the piece of paper written by the physician. Name of the medication, strength, quantity, SIG (instructions) and refills. There is other data such as ICD9 (condition being treated) and DAW (dispense as written, no generic substituting) which is sometimes specified.

Medication data consists of what is typically found on the label on the pill bottle. NDC (national drug code), quantity, lot number, expiration date and refill number are some examples.

When the prescriber (typically a physician) writes a prescription, he/she does not actually know what the dispenser will use for filling the prescription. Because multiple manufacturers produce the same medications and multiple repackagers provide the same medications to doctors, a prescription can be filled by any number of different NDCs, lot numbers, and so on.

It's important to understand that the EMR system is only sending prescription information to the dispensing system. The dispenser then uses the prescription information, inventory levels, and other factors to decide what medications to dispense to the patient.

When creating the dispense link to the MDScripts system, there can be multiple prescriptions with a single patient. For this reason, the prescription parameters are enumerated as drugName1, drugName2, ... drugNameN in order to specify multiple prescriptions. There is no limit to the number of prescriptions that can be sent over in a single link, although it's rare to get a patient with over 8 prescriptions in a single office visit.

Once the user clicks on the Dispense link in the EMR interface, a browser will launch and the user will be taken to the first screen of the dispensing process in the MDScripts system. On the first screen, the patient information will be populated from the parameters passed in the link. The user will then go to the 2nd screen in the dispensing process where medications are scanned from inventory. In this area, the user will be able to see the prescription data passed in the link in order to determine what medications to scan for the patient. The user will then complete the dispensing process, print pharmacy labels and so forth.

In essence, the EMR link is a means by which the user does not have to retype the patient and prescription information in order to dispense the medications to the patient.

REPORTS

The MDScripts system has a collection of standard reports that are displayed through the user interface as HTML or CSV data. An example of a report is the Rx Log report which is a log of dispensing activity. This report is designed specifically for pharmacy inspectors when they visit a pharmacy or dispensing location. Much like the link used to display inventory, the reports have a name such as ShowRxLog that is passed along as the value for the parameter "target". Each of the reports has other optional parameters such as a date ranges, filter by physician, and so forth.

The EMR simply provides links to whichever reports the user may be interested in. There is also a screen in the MDScripts system "ShowReports" which lists all of the available reports. We recommend that EMR software simply provide a link to this screen in order for the user to have access to all reports, including new reports that may be added after the EMR software's release.

DATA BACK TO EMR

Many physicians already using EMR software will request to see dispensing related information inside the EMR user interface. Typically this may be a request to view medication inventory levels or patient dispensing history. Designing and implementing these screens is a decision for the EMR software company. Short of implementing an entire dispensing system, the EMR software will have to interface to another system in order to get the data needed to implement these new requests.

Cranking Software works with EMR companies to create this 2nd level integration. Most of the screens mentioned in this overview have a data interface which will return data (XML) instead of HTML. EMR companies can fetch this data and then store/display it through their user interface. Because this creates duplicity, we work directly with EMR companies to limit the situations where the EMR software and MDScripts are showing different data.

CERTIFICATION AND TESTING

Cranking Software does not certify EMR companies at this point. We view the EMR interface as a shortcut to the dispensing process since the MDScripts dispensing system can be used to dispense medications even with the EMR software unplugged.

We are very careful to not change existing interfaces which can lead to backwards compatibility issues with existing EMR software. MDScripts software is typically released each week in order to meet our partner's ever changing business needs.

HIPPA AND PATIENT INFORMATION

Either Cranking Software or our partners sign HIPPA agreements with physician's offices as contractors or vendors of the physicians office. If the EMR company already has HIPPA agreements with physicians practices, it may be sufficient to have Cranking Software or our partners sign a HIPPA agreement as a contractor of the EMR.

Cranking Software provides a data service where physicians practices can request a CD-ROM copy of all their dispensing data. The data is shipped directly to the physician's office as a password protected file in case the CD-ROM is lost. The CD-ROM an absolute method for making sure a physician practice has access to their patient and dispensing records.

LEGAL

Each state has its own physician dispensing regulations. In some states, physician dispensing is not permitted by law. There are also several civil implications to physician dispensing that should be understood. Physicians should always seek the advice of reputable legal counsel before providing physician dispensing services to their patients.