Codonics SLS Variable Length Container IDs

Technical Brief

Overview

Version 1.5.0 software for Codonics Safe Label System™ (SLS) supports scanning and reading of variable-length Container IDs. For example, SLS 500i™ will now scan a drug container that uses a Data Matrix barcode with a 10-digit Container ID and a completely different container that uses an EAN-13 barcode with a 13-digit Container ID.

Previous releases supported only one predefined Container ID (that is, 10-digit) in a formulary. In version 1.5.0, Container IDs can be from 1 to 18 digits in length within a specific symbology (e.g., Data Matrix) or across symbologies (e.g., a 10-digit Container ID Data Matrix and a 13-digit EAN-13). This allows SLS to support scanning drug containers and printing syringe labels in sites that:

- Source drugs from multiple countries that have different standards for defining Container IDs.
- Use a combination of pre-labeled drugs and over-labeled drugs that have different length Container IDs and different symbologies.
- Prepare their own medications (compounding) and label the compounded drugs in the pharmacy with hospital-unique pharmacy ID codes as well as use prepared medications in vials and ampoules.

> **NOTE:** Container IDs greater than 15 characters are not guaranteed to fit in the standard syringe barcode, depending on the format of the data they contain. However, if the data is mostly numeric or follows a well-defined pattern, then it is likely to fit. Otherwise, another field from the syringe barcode has to be removed to accommodate the long Container ID. In those cases where the Container ID is greater than 15 and less than 18 characters and does not fit the standard numeric or well defined pattern, a Custom Barcode Definition could be created and added to the Safe Label System™ (SLS) Administration Tool (AT). This definition is part of the configuration package, and applies to all drugs in the formulary of a 500i on which such a configuration has been applied. Contact Codonics for further instructions.

Barcode Length and Container ID Length

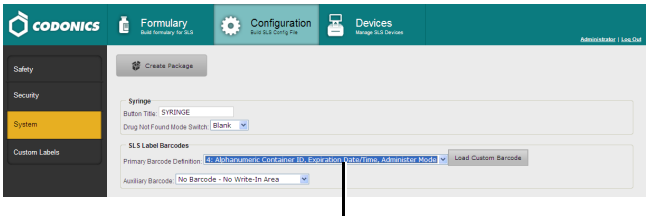
The length of a barcode is not necessarily the same as the length of the Container ID that it contains. For example, a Codonics Container Labeling System™ (CLS) barcode can contain the Container ID as well as expiration and lot information. The barcode length can be 20 or more characters; however, the Container ID portion of the barcode might only be 10 or 12 characters.

In version 1.5.0, barcode parsing rules can accommodate printing barcodes that include the Container ID and additional information. The barcode has a practical limit of 35 characters.

Configuring Container ID Lengths

To configure a range of Container ID lengths to be supported:

1. In the Configuration Manager section of the AT, go to the System tab.
2. In the Primary Barcode Definition list, select option 4.



Primary Barcode Definition option 4

3. Modify other configuration settings as needed and create the configuration package. For more information about the other configuration settings and how to create a configuration package, refer to the SLS Administration Tool User's Manual.
4. Go to the Formulary tab.
5. Click the Configure Locale button at the bottom left corner of the Formulary tab.

   The Configure Localization dialog box displays.
6. In the Container ID Length Minimum and Maximum lists, enter the minimum and maximum Container ID lengths to be supported. To specify a single length, select the same value in both lists.

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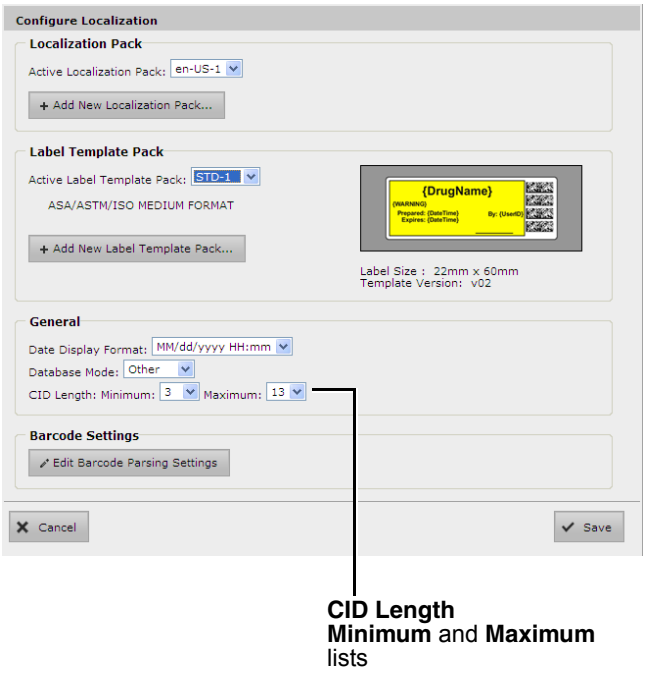
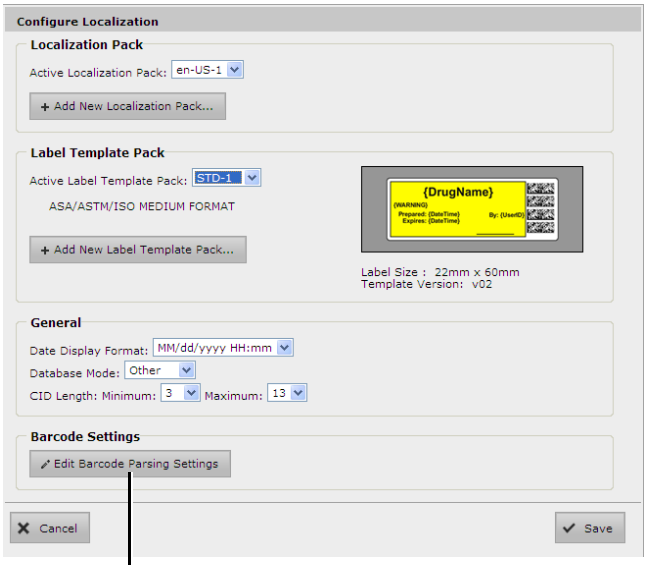


CID Length Minimum and **Maximum** lists

NOTE: SLS barcode parsing rules will enforce the specified minimum and maximum Container ID lengths.

7. Click the Edit Barcode Parsing Settings button.

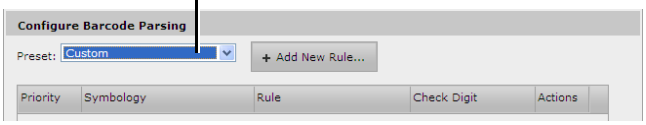


Edit Barcode Parsing Settings button

The Configure Barcode Parsing dialog box displays.

8. In the Preset list, select Custom.

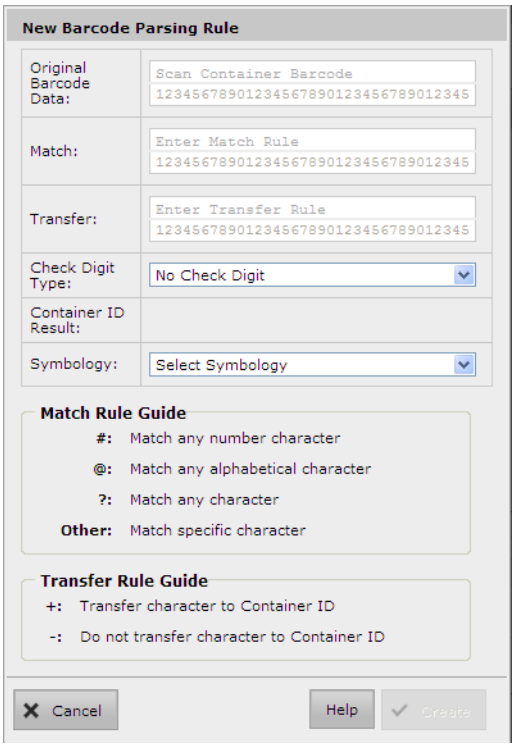
Select **Custom**



9. Click the Add New Rule button.

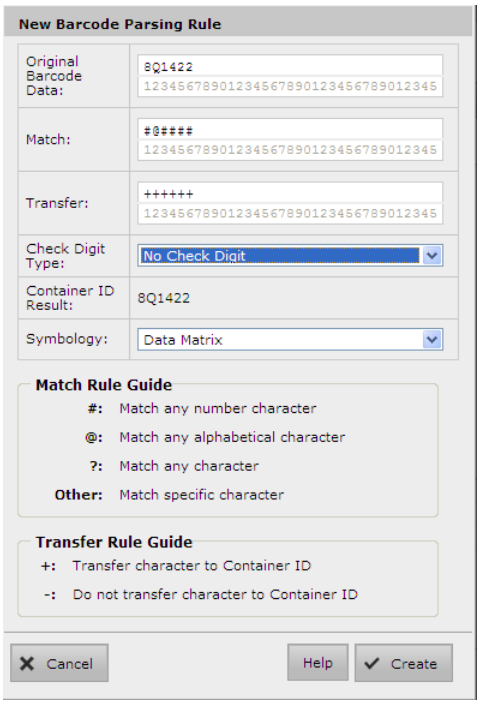
Add New Rule button

The New Barcode Parsing Rule dialog box displays.



10. Enter the parsing rule parameters in the fields and lists.

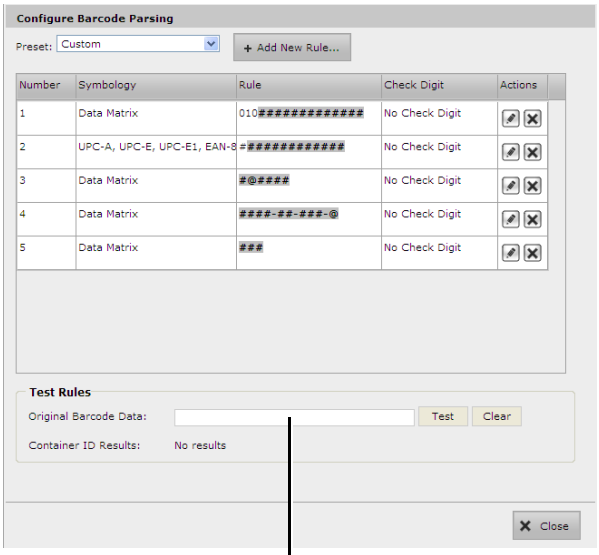
For information about the parsing rule parameters, refer to the topics "Barcode Parsing Rules and Finding Matching Container IDs" and "Example Barcode Parsing Rules" earlier in this Technical Brief and to the Codonics SLS Administration Tool Localization Enhancements Technical Brief (Codonics Part Number 901-261-001).



11. When you are finished entering the parsing rule parameters, click the Create button to create the parsing rule.

    The dialog box closes and the parsing rule is added to the list in the Configure Barcode Parsing dialog box. Next, you will test the barcode rule.

12. Click the Original Barcode Data field.

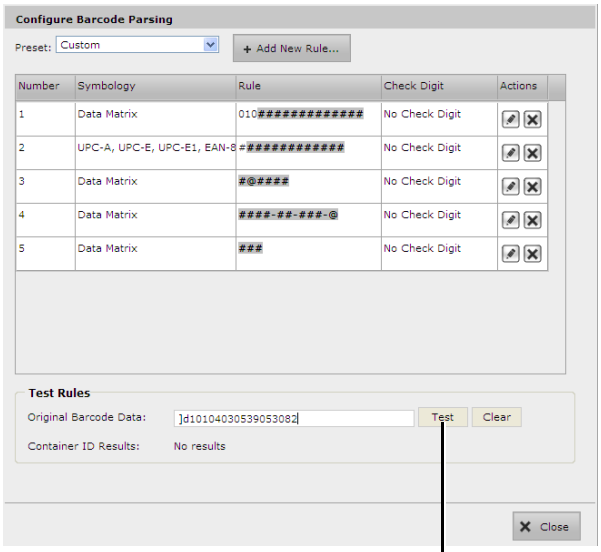


Original Barcode Data field

13. Scan the barcode.

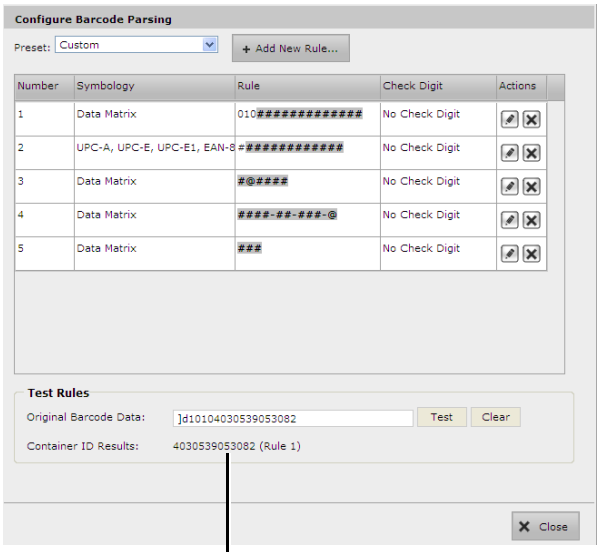
    The barcode contents are entered in the Original Barcode Data field.

14. Click the Test button.



Test button

The parsing rules that match the barcode are listed in the Matching Rule field. The resulting Container IDs as rendered by the parsing rules are listed in the Container ID Result field.



Test results

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15. When you are finished adding barcode parsing rules to support the variable length Container IDs that you will be using, create the formulary package and deploy the package to 500i devices. For more information about these tasks, refer to the SLS Administration Tool User's Manual.

Barcode Parsing Rules and Variable-Length Container IDs

The following topics describe how barcode parsing rules are used to support variable-length Container IDs. For more information about creating and managing barcode parsing rules, refer to the Codonics SLS Administration Tool Localization Enhancements Technical Brief (Codonics Part Number 901-261-001).

Barcode Parsing Rules and Finding Matching Container IDs

In version 1.5.0, when parsing a scanned barcode during the Container ID matching process, the system uses a "Match All Rules" approach. This means that the system must compare an incoming barcode with all possible parsing rules. If there are multiple matches and thus multiple possible Container IDs, the system allows the user to choose which match is correct.

For example, let's say that the barcode parsing rules include the following two rules:

Rule 1:

Match = 01#### Transfer = --++++ (Container ID = 4 digits)

Rule 2:

Match = ###### Transfer = ++++++ (Container ID = 6 digits)

With these rules, any 6-digit barcode that starts with **01** will match the first rule and will generate a 4-digit Container ID. However, there may be a barcode that starts with **01** that is a legitimate 6-digit barcode intended to match Rule 2.

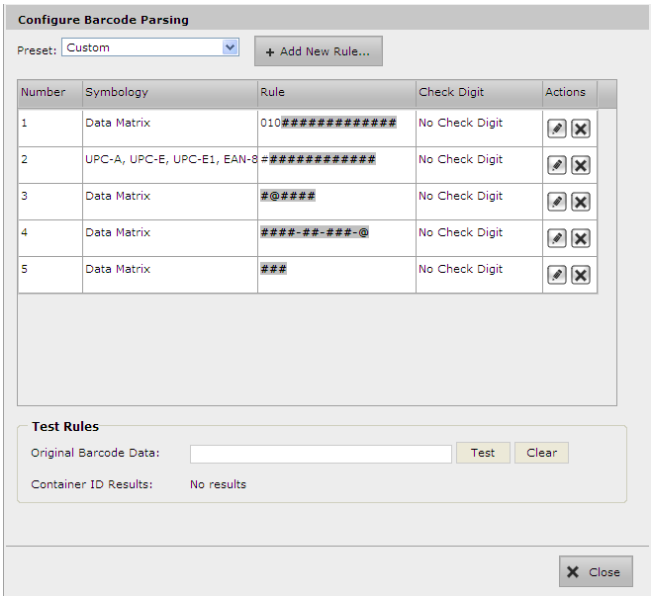
So, using these sample rules, a barcode string of **012345** would match both rules and would generate two possible Container IDs:

- Container ID = 2345 (from Rule 1)
- Container ID = 012345 (from Rule 2)

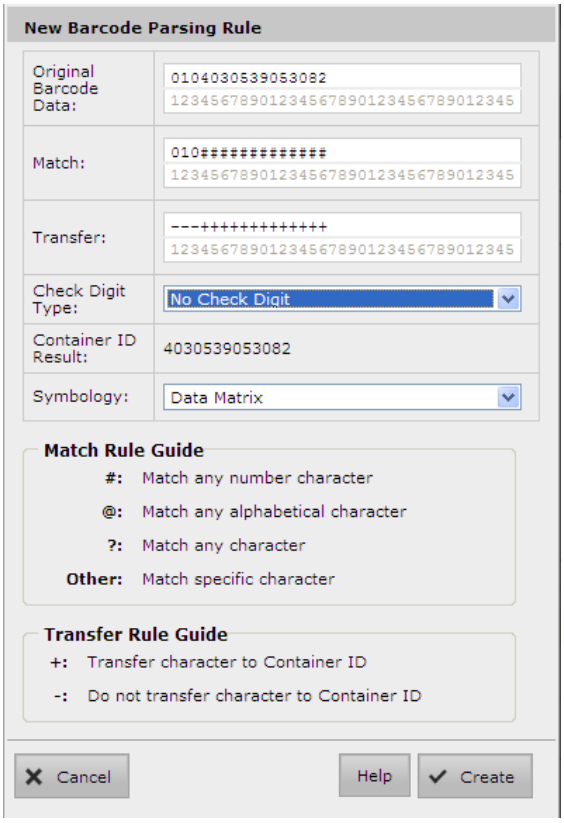
On 500i, both Container IDs would be compared against the formulary. If there were more than one match, then the user would have to choose between the matches (similar to when there are multiple instances of a single Container ID in the formulary). However, if only one match is found, then it would be assumed to be correct and the user would not be prompted to make a choice.

Example Barcode Parsing Rules

The set of barcode parsing rules listed in the following Configure Barcode Parsing dialog box includes examples of rules for variable-length Container IDs.



The following example Edit Barcode Parsing Rule dialog box shows the details of the first rule in the list above. In this example, there is a prefix of **010** that identifies the matching barcode/rule, and then the following 13 characters comprise the Container ID. Therefore, the total barcode length is 16.



Barcode Parsing Rules and Verification

Because the barcode parsing rules determine how a scanned barcode is interpreted, and thus what its corresponding Container ID is, any changes to the rules might invalidate drugs that have already been verified in the AT. For example, a rule could be edited or superseded by another rule that would cause a particular container barcode to be interpreted differently, resulting in a different Container ID or in the drug not being found when the container is scanned.

As a result, when the barcode parsing rules are **modified** and/or **deleted**, drugs in the Master Drug Database (MDD) might need to be unverified and then re-verified. However, because re-verifying all drugs in the MDD can take substantial time and effort, the AT allows the user to choose to unverify all the drugs or not.

When a barcode parsing rule is **added**, the only possible effect on existing drugs would be another potential match based on the new rule. The "Match All Rules" behavior already accommodates this scenario, so adding a new barcode parsing rule does not require re-verifying drugs.

Technical Support

If problems occur when using the AT, contact Codonics Technical Support.

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