Plug-in 'SpecParser'

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Type Plug-in

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Depends JDemetra+ 2.2.0, Java 8 or higher

Repository `https://github.com/bbkrd/SpecParser`

BugReports `https://github.com/bbkrd/SpecParser`

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1. Introduction

1.1. Overview of the plug-in

For the changeover from X-12ARIMA to JDemetra+ (JD+) the SpecParser is an useful plug-in in JD+ for automatic specification translation. Existing seasonal adjustment processings for X-12ARIMA can easily be migrated to JD+.
The following modes are possible:

Single mode	Translation of a single spc-file to an x13-document
Multi mode	Translation of an input metafile (mta-file)

1.2. Constraints

Correctness of files There is no test or check whether the original specification and data input files to translate are correct or the content makes sense.

File extensions of specification files Only specification files ending with .spc are supported. Meta-files ending with .mta are supported, but the referenced files have to end with .spc.

1.3. Differences to X-12ARIMA

Separator for spec arguments In spc files for X-12ARIMA it is possible to have more than one argument in one line separated by a blank. The SpecParser accepts just one argument in a line.

1.4. Installing and navigating to the plug-in

To install the SpecParser plug-in navigate, **Tools ►Plugins** from the drop down menus. For more information see ”JDemetra+ Reference Manual”. If the SpecParser plug-in has been successfully loaded you should be able to see a new button Open SpecParser when you right-click on an x13- or a multi-document.

1.5. How to use this guide

This guide is split into two sections, a quick start guide and a function guide.

Quick start Provides an overview how to use the plug-in.
Function guide Provides details how to use the plug-in and gives useful hints.

2. Quick start

The SpecParser can be used for both modes in the same manner.
The difference is in the kind of documents which you like to translate. For translating a single spc-file choose an x13-document in the JD+ workspace. For translating an mta-file with many spc-files choose a multi-document.

Steps

1. Right-click on the document in the JD+ workspace window and push the button [Open SpecParser] in the context menu.
2. An empty SpecParser window will be opened. (There are different windows for single and multi mode.)
3. For both modes exists a button [Load ...] on the top. When you click on this button a file manager will be opened. Here you can search for your document (.spc or .mta).
4. The translation starts automatically. At the bottom you can see the progress.
5. When the SpecParser is finished you get the message: `Translation completed`.
6. In the SpecParser window you can find the translated specification on the right hand side and a translation report at the bottom.
7. The results are stored in the chosen document of the JD+ workspace. Regression variables can be found in the JD+ workspace at **Utilities ►Variables ►reg_SpecParser**

3. Function guide

3.1. General

Format of data input X-12ARIMA allows to use different data input formats. The SpecParser supports the most important formats: free and datevalue. For further details of the formats have a look in the Reference Manual of X-12ARIMA.

Translation report There are differences in both software, e.g. missing specifications, different default values or calculations. The translation report informs you about possible reasons of differences in the results.
There are three kinds of translation report notifications:

`Errors` no translation possible, e.g. there is no data

`Warnings` results of JD+ and X-12ARIMA are likely to differ

`Messages` for information only

Start argument The SpecParser loads all available data in the JD+ workspace independent of the `start` argument. The `start` argument will be transformed into span.

List of variables There is just one variables list in Utilities called reg_SpecParser for the regressors no matter how often the SpecParser is used in the current workspace.
The name of the regressor is defined in the `user` argument. If there is already a regressor with the same name but with different values in the list of reg_SpecParser, the second variable gets an appendix with a counter on its name, e.g. myReg[1]

Allocation of user-defined regressors There are different locations in the X-12 algorithm where the regressors have an effect on the results. To replicate the most common uses, two modes are available in the SpecParser options:

`Default mode` This is the default setting. The allocation is as in X-12ARIMA. The regressors get their component type allocation from the `usertype` argument. They will be set at User-defined variables in the JD+ regression specification. For more details see table A.1 on page 9.

`Calendar mode` If this setting is chosen, the regressors set at **Calendars ►tradingDays ►UserDefined** in the JD+ regression specification. All regressors are allocated to a calendar (see tabel A.2 on page 9).

3.2. Single mode

Denotation The x13-document gets the name of the spc-file.

Spec is modifiable The loaded specification file is shown in a text area of the SpecParser window. Here you can change the content of the spc-file. To translate the changes click on the button Refresh JD+Spec. But you have to close the x13-document before, there is no automatic update for the graphical interface.

3.3. Multi mode

Denotation The multi-document gets the name of the mta-file. The single series get their name from the input of the mta-file.

List of mta input The list consists of defined spc-files in the mta-file. For each specification the translation report is shown when you mark the list item. With a double click on an item the single SpecParser window will be opened with the specification input and you can modify this.

Highlighted items The highlighting depends on the translation report:

`Red` There are one or more errors.

`Orange` There are one or more warnings, but no error.

`Yellow` There are just one or more messages.

`Green` There are no messages, warnings or errors.

Refresh of input data There is no possibility to refresh the input data (series and regressors) loaded by the SpecParser. But you can exchange the data in the translated document by loading the data in the provider window and drag'n'drop it in the document.

A. Component type allocation of user-defined regressors

In X12-ARIMA and JD+ the user can specify which component an user-defined regressor should be allocated to. The tables show the interrelationship between both software and the algorithm.

X-12ARIMA spc-file	**JD+ specification**	**Component type**	**Algorithm table**
`usertype = td`	**Regression ►Calendar ►UserDefined**	-	A6

`usertype = user`
`# user = final`
	Regression ►User-defined variables	Irregular	A8i, A8

`usertype = user`
`user = final`
		Series	A9ser, A9

`usertype = seasonal`		Seasonal	A8s, A8
`usertype = ls`		Trend	A8t, A8
`usertype = holiday`		Undefined	A9u

Table A.1.: Allocation of user-defined regressors in default mode

X-12ARIMA spc-file	**JD+ specification**	**Algorithm table**
`usertype = td`	**Regression ►Calendar ►UserDefined**	A6

`usertype = user`
`# user = final`		

`usertype = user`
`user = final`		

`usertype = seasonal`		
`usertype = ls`		
`usertype = holiday`		

Table A.2.: Allocation of user-defined regressors in calendar mode