

**X-12-ARIMA Quick Reference for DOS**  
**Final Version 0.2.10**  
**July 26, 2002**

**Running X-12-ARIMA on a single series:**

`{path1\}x12a {-i} {path2\}filename`

where:

`{-i}` : optional flag that informs X-12-ARIMA that the named file is an input specification file.  
`{path2\} filename.spc` : input specification file  
`{path2\} filename.out` : main output file  
`{path2\} filename.err` : error file  
    `{path1\}` : path information for the X-12-ARIMA program (optional)  
    `{path2\}` : path information for the X-12-ARIMA input file (optional)

Example:

`c : \x12arima\x12a    b : \sales\retail`

Notes:

- (a) Only the filename is specified, not the extension.
- (b) The program uses this filename to form the filenames of other files generated by the program.

**Running X-12-ARIMA on more than one series (a spec file for every series):**

`{path1\} x12a -m {path2\} metafile`

where

-m : the flag that informs X-12-ARIMA that the named file is a metafile.  
`{path2\} metafile.mta` : input metafile.  
`{path2\} metafile.log` : logfile, which gives a summary of all the runs for a given metafile.  
    `{path1\}` : path information for the X-12-ARIMA program (optional)  
    `{path2\}` : path information for the X-12-ARIMA metafile (optional)

Example:

`c : \x12arima\x12a    - m    b : \sales\allsales`

Notes:

- (a) Only the filename (and path, if necessary) for the metafile is specified, not the extension.
- (b) The metafile must have one or two filenames (without extension) per line, separated by a tab or blank spaces. The first filename is the filename of an input specification file. The second (if specified) is the filename used to form the filenames of the output files for the run specified by the corresponding input specification file.
- (c) If only one filename is given on a particular line, the filename of the input specification file is used to generate the names of the output files.
- (d) Up to 500 input files can be specified in a single metafile.

## Running X-12-ARIMA on more than one series (one spec file run on many series):

`{path1\} x12a {-i} {path2\}filename -d {path3\} metafile`

where

- `{-i}` : optional flag that informs X-12-ARIMA that the named file is an input specification file.
- `{path2\} filename.spc` : input specification file
- `-d` : the flag that informs X-12-ARIMA that the named file is a data metafile.
- `{path3\} metafile.dta` : data metafile.
- `{path3\} metafile.log` : logfile, which gives a summary of all the runs for a given metafile.
- `{path1\}` : path information for the X-12-ARIMA program (optional)
- `{path2\}` : path information for the X-12-ARIMA input file (optional)
- `{path3\}` : path information for the X-12-ARIMA data metafile (optional)

Example:

`c : \x12arima\x12a sales -d b : \sales\allsales`

Notes:

- (a) Only the filename (and path, if necessary) for the data metafile is specified, not the extension.
- (b) The metafile must have one or two filenames per line, separated by a tab or blank spaces. The first filename is the filename of a data file (including the file extension). The second (if specified) is the filename (without extension) used to form the filenames of the output files for the run specified by the corresponding input specification file.
- (c) If only one filename is given on a particular line, the filename of the data file is used to generate the names of the output files.
- (d) The X-12-ARIMA options given in the input specification file are applied to the data read in from each of the files given in the data metafile.
- (e) Up to 500 data files can be specified in a single data metafile.

## Other options declared at time of execution:

- `-c` : Sum each of the components of a composite adjustment, but only perform modelling or seasonal adjustment on the total.
- `-g dirname` : Directory where graphics metafile and related files for external graphics are stored
- `-n` : (No tables) Only tables specifically requested in the input specification file will be printed out
- `-o filename` : Filename (without extension) used for all output files generated during this run of the program.
- `-p` : No pagination is used in main output file.
- `-q` : Run X-12-ARIMA in “quiet” mode (warning messages not sent to console).
- `-r` : Reduced output format used to table formats and headers.
- `-s` : Store seasonal adjustment diagnostics in a file (and, if a regARIMA model is estimated, store model diagnostics into another file).
- `-v` : Only check input specification file(s) for errors; no other processing.
- `-w` : Wide (132 character) format is used in main output file.

Example:

`c : \x12arima\x12a -s -i b : \sales\retail -n`

Notes:

- (a) Options can entered in any order (ie, `-n -s` is treated the same as `-s -n`).
- (b) The `-v` flag should not be used with the `-s`, `-c`, `-n`, `-w`, `-r`, `-q` or `-p` flags. A warning message will be generated.
- (c) The `-c` flag can only be used with the `-m` flag.
- (d) The `-m` flag cannot be used with the `-d` flag.
- (e) The `-i` flag cannot be used with the `-m` flag.
- (f) The `-o` flag cannot be used with the `-m` and `-d` flags.

## Specs and arguments for the input specification file

Notes:

- (a) For the arguments given below, when two or more values are connected by the symbol |, only one of the values can be assigned to the argument in a given run.
- (b) Dates are specified as either *year.month* for monthly data or *year.quarter* for quarterly data. For monthly series, the months can be denoted either by integers (1 to 12) or by month abbreviations (**jan**, **feb**, **mar**, **apr**, **may**, **jun**, **jul**, **aug**, **sep**, **oct**, **nov**, **dec**). For quarterly series, only integers (1 to 4) are allowed.
- (c) Anything on a line after a number sign (**#**) is considered a comment and is ignored by the program.
- (d) Every input specification file must have either a **series** spec or a **composite** (for runs where a composite seasonal adjustment is performed) spec, and this spec must be the first spec in the input file.
- (e) Spec names, arguments, key-words, and dates are not case sensitive. For example, **SeasonalMA** and **seasonalma** are treated the same by **X-12-ARIMA**.
- (f) Multiple arguments must be enclosed in parentheses. If an argument accepts multiple values but only one is given, then the parentheses are optional. If an argument accepts only a single value, the value must not be enclosed in parentheses.
- (g) Change of regime regression variables can be specified for seasonal (**seasonal**), trigonometric seasonal (**sincos**), trading day (**td**, **tdnolpyear**, **tdlcoef**, **tdlnolpyear**, or **tdstock**), length-of-month (**lom**), length-of-quarter (**loq**), or leap year (**lpyear**) regression variables. When a change of regime is specified for one of these regression variables, the program will add an additional set of regression variables that is defined as usual before the date of the change of regime, and set to zero for those observations on or after the change of regime date. A change of regime regression variable is specified by appending a valid date surrounded by slashes to the name of a regression variable in the **variables** argument of the **regression** spec. For example, to specify a change of regime in trading day after June of 1985, put **td/1985.jun/** in the **variables** argument of the **regression** spec.
- (h) **X-12-ARIMA** will extend the series with one year of forecasts prior to seasonal adjustment whenever a **REGARIMA** model is specified with no **forecast** spec. The only way to specify a seasonal adjustment without forecast extension when a **REGARIMA** model is specified is to set **maxlead = 0** in the **forecast** spec.
- (i) The **data** and **file** arguments cannot be used in the same spec.
- (j) The **data** and **format** arguments cannot be used in the same spec.
- (k) The **function** and **power** arguments cannot be used together in the **transform** spec.
- (l) The **series** and **composite** specs cannot be used in the same input file.
- (m) The **automdl** and **arima** specs cannot be used in the same input file.
- (n) The **x11regression** spec cannot be used on a series with missing data.
- (o) The **b** argument in the **regression** and **x11regression** specs must appear **after** the **variables** and **user** arguments.
- (p) When **0.per** is entered for the ending date of the **modelspan** argument of the **series** or **composite** specs, the ending date of the model span will be set to be the final occurrence of the period **per** in the span of data analyzed (ie, **modelspan=(1980.jan,0.dec)** will set the ending date of the model span to the last December of the data).
- (q) Arguments which have been designated **Rarely Used Options** in the main documentation are given at the end of each spec, with a **"#"** as the first character of the line.

## INDIVIDUAL SPECS (with starting page number in main documentation)

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```

arima{
  ar = (initial coefficients for AR, or fixed values with suffix f, e.g. -.6f)
  ma = (initial coefficients for MA, or fixed values with suffix f, e.g. -.6f)
  model = (p d q)(P D Q)
  title = ' '
}

```

```

automdl{
  bcstlim = limit for average backcast error { default: 18.0 }
  fcstlim = limit for average forecast error { default: 15.0 }
  file = ' ' { default: 'x12a.mdl' }
  identify = all | first { default: first }
  method = first | best { default: first }
  mode = both | fcst { default: fcst }
  outofsample = yes | no { default: no }
  overdiff = limit for overdifferencing { default: 0.9 }
  print = See Table 1 for list of table names
  qlim = limit for probability of Ljung-Box Q { default: 5.0 }
  savelog = See Table 2 for list of diagnostics
}

```

```

check{
  maxlag = number of acf's to print { default: 36 for monthly series, 12 for quarterly series }
  print = See Table 1 for list of table names
  save = See Table 1 for list of table names
  savelog = See Table 2 for list of diagnostics
}

```

```

composite{
  decimals = 0 { number of output decimals, must be an integer from 0 to 5, inclusive }
  modelspan = ( startdate, enddate ) { default: starting, ending date of the aggregated series }
  name = ''
  print = See Table 1 for list of table names
  save = See Table 1 for list of table names
  savelog = See Table 2 for list of diagnostics
  spectrumstart = date
    { default: eight years before end of span for monthly series, start of span for quarterly series }
  title = ''
#   diffspectrum = yes | no { default: yes }
#   saveprecision = 10 { number of decimals in save tables, must be integer from 1 to 15 }
#   spectrumtype = arspec | periodogram { default: arspec }
#   yr2000 = yes | no { default: yes }
}

estimate{
  exact = ma | arma | none { default: exact m.l.e for all coefficients }
  maxiter = maximum number of iterations { default: 200 }
  outofsample = yes | no { default: no }
  print = See Table 1 for list of table names
  save = See Table 1 for list of table names
  savelog = See Table 2 for list of diagnostics
  tol = convergence tolerance { default: 10e-5 }
#   file = ''
#   fix = nochange | all | arima | reg | none { default: nochange }
}

forecast{
  exclude = number of observations to drop before starting forecasts { default: 0 }
  maxback = how many backcasts { default: 0 }
  maxlead = how many forecasts { default: one year }
  print = See Table 1 for list of table names
  probability = coverage probability of prediction intervals, assuming normality { default: 0.95 }
  save = See Table 1 for list of table names
}

history{
  endtable = ending date of tables for seasonal adjustment revisions histories
  estimates = ( sadj sadjchng trend trendchng seasonal aic fcst )
  fixmdl = yes | no { default: model is reestimated every time }
  fixreg = ( td holiday user outlier )
  fstep = vector of forecast leads for the out-of-sample forecasts and MSE's { default: (1,period) }
  print = See Table 1 for list of table names
  sadjlags = vector of target lags for revisions history of the seasonally adjusted series
  save = See Table 1 for list of table names
  savelog = See Table 2 for list of diagnostics
  start = starting date of revision history
  target = concurrent | final { default: final }
  trendlags = vector of target lags for revisions history of the trend component
#   fixx11reg = yes | no { default: no }
#   refresh = yes | no { default: no }
#   outlier = ( keep | remove auto ) { default: keep }
#   outlierwin = number of observations to test for outliers { default: one year }
#   x11outlier = yes | no { default: yes }
}

```

```

identify{
  diff = ( orders of nonseasonal differencing )
  maxlag = number of acf's and pacf's to print { default: 36 for monthly series, 12 for quarterly series }
  print = See Table 1 for list of table names
  save = See Table 1 for list of table names
  sdifff = ( orders of seasonal differencing )
}

outlier{
  critical = critical value for outlier testing |(criticalAO,criticalLS,criticalTC)
    { default: depends on length of span, see Table 3 }
  lsrun = number of successive level shifts to test { default: 0 }
  method = addone | addall { default: addone }
  print = See Table 1 for list of table names
  save = See Table 1 for list of table names
  span = (startdate, enddate )
  types = none | ao | ls | tc | all { default: (ao ls) }
#   tcrate = number between 0 and 1 { default: 0.70 * (12 / period) }
}

regression{
  aictest = ( td | tdnolpyear | td1coef | td1nolpyear | tdstock  easter  user )
  data = ( )
  file = ' '
  format = '( valid FORTRAN format )' | 'datevalue' | 'x12save'
  print = See Table 1 for list of table names
  save = See Table 1 for list of table names
  savelog = See Table 2 for list of diagnostics
  start = date { default: the begining of the series }
  user = (names of user-defined regression variable(s))
  usertype = ( constant  seasonal  td  lpyear  lom  loq  tdstock
    easter  sceaster  thanks  labor  holiday  ao  ls  rp  tc  user )
  variables = (const  seasonal | sincos[1 to period/2]  td | tdnolpyear | td1coef | td1nolpyear | tdstock[n]
    lpyear | loq | lom  easter[1 to 25] | sceaster[1 to 25]  labor[1 to 25]  thank[-8 to 17]
    aodate  lsdate  tcdate  rpdate-date)
#   aicdiff = difference needed for AIC-based test to accept regressor { default: 0.0 }
#   b = (initial coefficients for regressors, or fixed values with suffix f, e.g. -.6f)
#   centeruser = mean | seasonal { default: user-defined regressors are not centered }
#   eastermeans = yes | no { default: yes }
#   noapply = (td  ao  ls  tc  holiday  userseasonal  user)
#   tcrate = number between 0 and 1 { default: 0.70 * (12 / period) }
}

```

```

series{
  comptype = add | sub | mult | div
  compwt = any number > 0 { default: 1 }
  data = ( )
  decimals = 0 { number of output decimals, must be an integer from 0 to 5, inclusive }
  file = ' '
  format = '( valid FORTRAN format )' | '1r' | '2r' | '1l' | '2l' | '2l2' | 'cs' | 'cs2' | 'datevalue' |
    'x12save' | 'tramo'
  modelspan = ( startdate, enddate ) { default: starting, ending date of span }
  name = ' '
  period = 12 | 4 { default: 12 }
  precision = 0 { number of input decimals, must be an integer from 0 to 5, inclusive }
  print = See Table 1 for list of table names
  save = See Table 1 for list of table names
  savelog = See Table 2 for list of diagnostics
  span = ( startdate, enddate )
  spectrumstart = date
    { default: eight years before end of span for monthly series, start of span for quarterly series }
  start = date
  title = ' '
#   diffspectrum = yes | no { default: yes }
#   divpower = 4 { rescale series by power of 10, must be integer from -9 to 9 }
#   missingcode = any number default: -99999.
#   saveprecision = 10 { number of decimals in save tables, must be integer from 1 to 15 }
#   spectrumentype = arspec | periodogram { default: arspec }
#   trimzero = yes | no { default: yes }
#   yr2000 = yes | no { default: yes }
}

slidingspans{
  cutchn = any number > 0 { default: 3.0 }
  cutseas = any number > 0 { default: 3.0 }
  cuttd = any number > 0 { default: 2.0 }
  fixmdl = yes | no | clear { default: model is fixed every span }
  fixreg = ( td holiday user outlier )
  length = length of sliding span { default: selected by program }
  numspans = number of sliding spans { default: selected by program }
  outlier = yes | keep
  print = See Table 1 for list of table names
  save = See Table 1 for list of table names
  savelog = See Table 2 for list of diagnostics
  start = starting date of ss comparisons { default: selected by program }
#   additivesa = percent | difference { default: difference }
#   fixx11reg = yes | no { default: yes }
#   x11outlier = yes | no { default: yes }
}

```

```

transform{
  adjust = lom | log | lpyear
  data = ( )
  file = ' '
  format = '( valid FORTRAN format )' | '1r' | '2r' | '1l' | '2l' | '2l2' | 'cs' | 'cs2' | 'datevalue' |
    'x12save' | 'tramo'
  function = none | log | sqrt | inverse | logistic | auto { default: none }
  mode = percent | ratio | diff
  name = ' '
  power = power for Box-Cox power transformation { default: no transformation }
  precision = 0 { number of input decimals, must be an integer from 0 to 5, inclusive }
  print = See Table 1 for list of table names
  save = See Table 1 for list of table names
  savelog = See Table 2 for list of diagnostics
  start = date { default: beginning of the series }
  title = 'of the adjustments'
  type = temporary | permanent
#   aicdiff = AICC difference needed to accept no transformation { default: 2.0 }
#   trimzero = yes | no { default: yes }
}

x11 {
  appendfcst = yes | no { default: no }
  final = ao | ls | tc | user { default: all listed effects kept in final seasonally adjusted series }
  force = totals | round | both { default: seasonally adjusted series unchanged }
  mode = mult | add | logadd | pseudoadd { default: mult }
  print = See Table 1 for list of table names
  save = See Table 1 for list of table names
  savelog = See Table 2 for list of diagnostics
  seasonalma = x11default | s3x1 | s3x3 | s3x5 | s3x9 | s3x15 | stable | msr { default: msr }
  signalim = (1.5 2.5) | (lower and upper sigma limits, both > 0)
  title = 'of seasonal adjustment'
  trendma = any odd number less than 101 { default: automatic trend selection }
  type = sa | summary | trend { default: sa }
  x11easter = yes | no { default: no }
#   calendarsigma = all | signif | select | none { default: none }
#   forcaststart = month or quarter when forcing starts { default: 1st month or quarter of year }
#   itrendma = centered1yr | cholette2yr { default: centered1yr }
#   keepholiday = yes | no { default: no }
#   print1stpass = yes | no { default: no }
#   sfshort = yes | no { default: no }
#   sigmavec = list of months to be grouped together
#   spectrumaxis = same | diff { default: diff }
#   trendic = any number > 0 { default : depends on what is entered for trendma }
#   true7term = yes | no { default: no }
}

```



```

x11regression {
  aictest = (td | td1coef | tdstock  easter  user)
  critical = critical value for AO outlier testing
             { default: depends on length of span, see Table 3 }
  data = ( )
  file = ' '
  format = '( valid FORTRAN format )' | 'x12save' | 'tramo'
  outliermethod = addone | addall { default: addone }
  outlierspan = (startdate, enddate )
  print = See Table 1 for list of table names
  save = See Table 1 for list of table names
  savelog = See Table 2 for list of diagnostics
  sigma = any number > 0 { default: 2.5 }
  span = ( startdate, enddate ) { default: starting, ending date of span }
  start = date { default: the begining of the series }
  tdprior = (td weight for each day of week) { default: no prior trading day }
  user = (names of user-defined regression variable(s))
  usertype = ( td tdstock ao holiday easter labor thanks user )
  variables = (td | td1coef | tdstock[n]  aodate easter[1 to 25] | sceaster[1 to 25]  labor[1 to 25]
               thank[-8 to 17] )
#  aicdiff = difference needed for AIC-based test to accept regressor { default: 0.0 }
#  b = (initial coefficients for regressors, or fixed values with suffix f, e.g. -.6f)
#  centeruser = mean | seasonal { default: user-defined regressors are not centered }
#  eastermeans = yes | no { default: yes }
#  forcecal = yes | no { default: no }
#  noapply = (td holiday)
#  reweight = yes | no { default: no }
#  umdata = ( ) { user-defined mean to be removed from irregular }
#  umfile = ' ' { file containing user-defined mean to be removed from irregular }
#  umformat = '( valid FORTRAN format )' | '1r' | '2r' | '1l' | '2l' | '2l2' | 'cs' | 'cs2' | datevalue' |
#             'x12save' | 'tramo'
#  umname = ' ' { name of the user-defined mean }
#  umprecision = 0 { number of input decimals, must be an integer from 0 to 5, inclusive }
#  umstart = date { default: the begining of the series }
#  umtrimzero = yes | no { default: yes }
}

```

**Table 1. Tables printed or saved by X-12-ARIMA**

<b>Name</b>	<b>Abbrev.</b>	<b>Save Table?</b>	<b>Brief</b>	<b>Default</b>	<b>Spec</b>
autochoice	ach		+	+	automdl
automodels	amd		+	+	automdl
header	hdr		+	+	automdl
acf	acf	+		+	check
acfplot	acp			+	check
acfsquared	ac2	+			check
acfsquaredplot	ap2				check
histogram	hst			+	check
normalitytest	nrm			+	check
pacf	pcf	+			check
pacfplot	pcp				check
specresidual	spr				check
compositeplot	cmp				composite
compositesrs	cms	+	+	+	composite
header	hdr		+	+	composite
indadjstot	iaa	+	+	+	composite
indfstd8	idf			+	composite
indirregular	iir	+		+	composite
indirregularplot	iip				composite
indmcdmovavg	if1	+			composite
indmodirr	ie3	+			composite
indmodoriginal	ie1	+			composite
indmodsadj	ie2	+			composite
indmovseasrat	ims			+	composite
indqstat	if3		+	+	composite
indreplacsi	id9			+	composite
indresidualseasf	irf			+	composite
indrevsachanges	i6a	+		+	composite
indrndsachanges	i6r	+		+	composite
indrobustsa	iee	+			composite
indsachanges	ie6	+		+	composite
indsadjround	irn	+	+	+	composite
indseasadj	isa	+	+	+	composite
indseasadjplot	iap				composite
indseasonal	isf	+	+	+	composite
indseasonaldiff	isd	+	+	+	composite
indseasonalplot	isp				composite
indtest	itt		+	+	composite
indtrend	itn	+		+	composite
indtrendchanges	ie7	+		+	composite
indtrendplot	itp				composite
indunmodsi	id8	+		+	composite
indx11diag	if2		+	+	composite
indyrtotals	ie4				composite
origchanges	ie5	+		+	composite
origwindsaplot	ie0				composite
outlieradjcomposite	oac	+			composite
ratioplotindsa	ir2				composite
ratioplotorig	ir1				composite
speccomposite	is0			+	composite

Table 1. Tables printed or saved by X-12-ARIMA (continued)

Name	Abbrev.	Save Table?	Brief	Default	Spec
specindirr	is2		+	+	composite
specindsa	is1		+	+	composite
armacmatrix	acm	+			estimate
averagefcsterr	afc			+	estimate
estimates	est	+	+	+	estimate
iterationerrors	ite				estimate
iterations	itr	+			estimate
lformulas	lkf				estimate
lkstats	lks	+	+	+	estimate
model	mdl	+	+	+	estimate
options	opt			+	estimate
regcmatrix	rcm	+			estimate
regressioneffects	ref	+			estimate
residuals	rsd	+			estimate
roots	rts	+			estimate
forecasts	fct	+		+	forecast
transformed	fttr	+		+	forecast
variances	fvr	+			forecast
chngeestimates	che	+			history
chngrevisions	chr	+		+	history
chnghistory	chs		+	+	history
fcsterrors	fce	+	+	+	history
fcsthistory	fch	+			history
header	hdr		+	+	history
indsaestimates	iae	+			history
indsarevisions	iar	+		+	history
indsasummary	ias		+	+	history
lkhdhistory	lkh	+	+	+	history
outlierhistory	rot	+	+	+	history
saestimates	sae	+			history
sarevisions	sar	+		+	history
sasummary	sas		+	+	history
sfestimates	sfe	+			history
sfilterhistory	sflh	+			history
sfrevisions	sfr	+		+	history
sfsummary	sfs		+	+	history
trendchngeestimates	tce	+			history
trendchngrevisions	tcr	+		+	history
trendchnghistory	tcs		+	+	history
trendestimates	tre	+			history
trendrevisions	trr	+		+	history
trendsummary	trs		+	+	history
acf	iac	+		+	identify
acfplot	acp			+	identify
pacf	ipc	+		+	identify
pacfplot	pcp			+	identify
regcoefficients	rgc				identify
finaltests	fts				outlier
header	hdr			+	outlier
iterations	oit	+			outlier

Table 1. Tables printed or saved by X-12-ARIMA (continued)

Name	Abbrev.	Save Table?	Brief	Default	Spec
temporaryls	tls		+	+	outlier
tests	ots				outlier
aictest	ats		+	+	regression
aoutlier	ao	+	+	+	regression
holiday	hol	+	+	+	regression
levelshift	ls	+	+	+	regression
outlier	otl	+	+	+	regression
regressionmatrix	rmx	+			regression
regseasonal	a10	+	+	+	regression
temporarychange	tc	+	+	+	regression
tradingday	td	+	+	+	regression
userdef	usr	+	+	+	regression
header	hdr		+	+	series
outlieradjorig	a19	+	+	+	series
savefile	sav		+	+	series
seriesmvadj	mv	+	+	+	series
seriesplot	a1p				series
span	a1	+	+	+	series
specfile	spc	+	+	+	series
specorig	sp0			+	series
chngs spans	chs	+			slidingspans
factorm means	fmn			+	slidingspans
header	hdr		+	+	slidingspans
indchngs spans	cis	+			slidingspans
indfactorm means	fmi		+	+	slidingspans
indpercent	pci		+	+	slidingspans
indsas spans	ais	+			slidingspans
indsf spans	sis	+			slidingspans
indsummary	smi			+	slidingspans
indychngs spans	yis	+			slidingspans
indypercent	piy				slidingspans
indyysummary	piy				slidingspans
percent	pct		+	+	slidingspans
sas spans	sas	+			slidingspans
sfs spans	sfs	+			slidingspans
ssftest	ssf			+	slidingspans
summary	sum			+	slidingspans
tdspans	tds	+			slidingspans
ychngs spans	ycs	+			slidingspans
yypercent	pcy				slidingspans
yysummary	smy			+	slidingspans
aictransform	tac		+	+	transform
permprior	a2p	+			transform
prior	a2	+	+	+	transform
prioradjusted	a3	+		+	transform
temp prior	a2t	+			transform
transformed	trn	+			transform
adjoriginal	b1	+	+	+	x11
adjoriginalc	c1	+			x11
adjoriginald	d1	+			x11

Table 1. Tables printed or saved by X-12-ARIMA (continued)

Name	Abbrev.	Save Table?	Brief	Default	Spec
adjorigplot	b1p				x11
adjustdiff	fad	+	+	+	x11
adjustfac	d16	+	+	+	x11
autosf	asf				x11
biasfactor	bcf	+			x11
calendar	d18	+	+	+	x11
combholiday	chl	+	+	+	x11
extreme	c20	+			x11
extremebs	b20	+			x11
ftestb1	b1f				x11
ftestd8	d8f		+	+	x11
irregular	d13	+		+	x11
irregularadjao	iao	+			x11
irregularb	b13	+			x11
irregularc	c13	+			x11
irregularplot	irp				x11
irrwt	c17	+		+	x11
irrwtb	b17	+			x11
mcdmovavg	f1	+			x11
modirregular	e3	+			x11
modoriginal	e1	+			x11
modseasadj	e2	+			x11
modsic4	c4	+			x11
modsid4	d4	+			x11
movseasrat	d9a			+	x11
origchanges	e5	+		+	x11
origwsaplot	e0				x11
qstat	f3		+	+	x11
ratioplotorig	ra1				x11
ratioplotsa	ra2				x11
replacsi	d9	+		+	x11
replacsib4	b4				x11
replacsib9	b9				x11
replacsic9	c9	+			x11
residualseasf	rsf			+	x11
revsachanges	e6a	+		+	x11
rndsachanges	e6r	+		+	x11
robustsa	e11	+			x11
sachanges	e6	+		+	x11
saround	rnd	+	+	+	x11
seasadj	d11	+	+	+	x11
seasadjb11	b11	+			x11
seasadjb6	b6	+			x11
seasadjc11	c11	+			x11
seasadjc6	c6	+			x11
seasadjd6	d6	+			x11
seasadjplot	sap				x11
seasadjtot	saa	+	+	+	x11
seasonal	d10	+	+	+	x11
seasonaladjregsea	ars	+	+	+	x11

Table 1. Tables printed or saved by X-12-ARIMA (continued)

Name	Abbrev.	Save Table?	Brief	Default	Spec
seasonalb10	b10	+			x11
seasonalb5	b5	+			x11
seasonalc10	c10	+			x11
seasonalc5	c5	+			x11
seasonald5	d5	+			x11
seasonaldiff	fsd	+	+	+	x11
seasonalplot	sfp				x11
sib3	b3	+			x11
sib8	b8	+			x11
specirr	sp2		+	+	x11
specsa	sp1		+	+	x11
tdadjorig	c19	+			x11
tdadjorigb	b19	+			x11
tdaytype	tdy		+	+	x11
trend	d12	+		+	x11
trendadjls	tal	+			x11
trendb2	b2	+			x11
trendb7	b7	+			x11
trendc2	c2	+			x11
trendc7	c7	+			x11
trendchanges	e7	+		+	x11
trendd2	d2	+			x11
trendd7	d7	+			x11
trendplot	trp				x11
unmodsi	d8	+		+	x11
unmodsioux	d8b	+			x11
x11diag	f2		+	+	x11
x11easter	h1	+	+	+	x11
yrtotals	e4			+	x11
calendar	xca	+	+	+	x11regression
calendarb	bxc	+			x11regression
combcalendar	xcc	+	+	+	x11regression
combcalendarb	bcc	+			x11regression
combtradingday	c18	+	+	+	x11regression
combtradingdayb	b18	+			x11regression
extremeval	c14			+	x11regression
extremevalb	b14				x11regression
holiday	xhl	+	+	+	x11regression
holidayb	bxh	+			x11regression
outlierhdr	xoh			+	x11regression
outlieriter	xoi	+			x11regression
outliertests	xot				x11regression
priortd	a4	+	+	+	x11regression
tradingday	c16	+	+	+	x11regression
tradingdayb	b16	+			x11regression
x11reg	c15			+	x11regression
x11regb	b15				x11regression
xaictest	xat		+	+	x11regression
xregressioncmatrix	xrc	+			x11regression
xregressionmatrix	xrm	+			x11regression

Table 2. Diagnostics saved to the log file by X-12-ARIMA

Name	Abbrev.	Spec	Name	Abbrev.	Spec
automodel	amd	automdl	aveabsrevsa	asa	history
ljungboxq	lbq	check	aveabsrevsf	asf	history
normalitytest	nrm	check	aveabsrevsfproj	asp	history
indfstabled8	id8	composite	aveabsrevtrend	atr	history
indicratio	iir	composite	aveabsrevtrendchn	atc	history
indidseasonal	iid	composite	aictest	ats	regression
indm1	im1	composite	peaks	spk	series
indm10	imt	composite	percent	pct	slidingspans
indm11	ime	composite	autotransform	atr	transform
indm2	im2	composite	fstableb1	fb1	x11
indm3	im3	composite	fstabled8	fd8	x11
indm4	im4	composite	icratio	icr	x11
indm5	im5	composite	idseasonal	ids	x11
indm6	im6	composite	m1	m1	x11
indm7	im7	composite	m10	m10	x11
indm8	im8	composite	m11	m11	x11
indm9	im9	composite	m2	m2	x11
indmovingseasf	isf	composite	m3	m3	x11
indmovingseasratio	isr	composite	m4	m4	x11
indq	iq	composite	m5	m5	x11
indq2	iq2	composite	m6	m6	x11
indtest	itt	composite	m7	m7	x11
peaks	spk	composite	m8	m8	x11
aic	aic	estimate	m9	m9	x11
aicc	acc	estimate	movingseasf	msf	x11
averagefcsterr	afc	estimate	movingseasratio	msr	x11
bic	bic	estimate	q	q	x11
hannanquinn	hq	estimate	q2	q2	x11
aveabsrevchn	ach	history	aictest	ats	x11regression
aveabsrevindsa	iaa	history			

Table 3. Default Critical Values for Outlier Identification Generated by X-12-ARIMA

Number of Observations Tested	Outlier Critical Value	Number of Observations Tested	Outlier Critical Value
1	1.9600	48	3.6273
2	2.2365	72	3.7323
3	2.4449	96	3.8007
4	2.6180	120	3.8508
5	2.7455	144	3.8898
6	2.8433	168	3.9169
7	2.9215	192	3.9217
8	2.9859	216	3.9484
9	3.0403	240	3.9714
10	3.0871	264	4.0093
11	3.1280	288	4.0253
12	3.1643	312	4.0398
24	3.4194	336	4.0529
36	3.5458	360	4.0650

**Table 4. Graphics Metafile Codes**

<b>Code</b>	<b>Description</b>
acf	ACF
acf2	ACF of Squared Residuals
adjori	Prior-Adjusted Original Series
aichst	History of the AICCs
ao	Additive Outliers
caf	Combined Adjustment Factors
cal	Calendar Factors From Irregular Regression
ccal	Combined Calendar Factors From Irregular Regression
cfcst	History of Concurrent Forecasts and Forecast Errors
chol	Combined Holiday Factors
cmpori	Original Composite Series
csahst	History of the Percent Change in the Seasonally Adjusted Series
ctd	Combined Trading Day Factors From Irregular Regression
ctrhst	History of the Percent Change in the Trend Values
fct	Original Series and Forecasts
fcthst	History of the Sum of Squared Forecast Errors
fincal	Combined Calendar Factors
fintst	Final Outlier t-test Statistics
fttr	Transformed Original Series and Forecasts
idacf	ACFs Generated by Identify Spec
idpacf	PACFs Generated by Identify Spec
imori	Original Data Modified for Extremes from Indirect Adjustment
imsa	Seasonally Adjusted Data Modified for Extremes from Indirect Adjustment
imirr	Irregular Component Modified for Extremes from Indirect Adjustment
indirr	Indirect Irregular
indrsi	Indirect Replacement Values for the SI Ratios
indsa	Indirect Seasonally Adjusted Series
indsar	Indirect Seasonally Adjusted with Rounding
indsat	Indirect Seasonally Adj with Forced Annual Totals
indsf	Indirect Seasonal Factors
indsi	Indirect SI Ratios
indtrn	Indirect Trend
irr	Final Irregular Component
irrw	Irregular Weights
isahst	History of the Indirect Seasonal Adjustment Values
ls	Level Shift Outliers
mdlest	regARIMA Model Estimates
modori	Original Data Modified for Extremes
modsa	Seasonally Adjusted Data Modified for Extremes
modirr	Irregular Component Modified for Extremes
mvadj	Original Series with Missing Values Replaced
oadori	Outlier-Adjusted Original Series
odjcmp	Outlier Adjusted Composite Data
ori	Original Series
otl	Combined Outliers
pacf	PACF
prior	Prior Adjustment Factors
ptd	Prior Trading Day Factors
rgseas	User-Defined Seasonal Regression Factors
rhol	Holiday Factors from regARIMA model
rsi	Replacement SI Ratios
rtd	Trading Day Factors from regARIMA model



**Table 4. Graphics Metafile Codes (continued)**

<b>Code</b>	<b>Description</b>
sa	Seasonally Adjusted Series
sahst	History of the Seasonally Adjusted Series
sarnd	Seasonally Adjusted Series with Rounding
satot	Seasonally Adjusted Series with Forced Annual Totals
sf	Seasonal Factors
sfhst	History of the Seasonal Factor Values
sfr	Seasonal Factors with User-Defined Regression
si	SI Ratios
siox	SI Ratios, with Labels for Outliers and Extreme Values
spccmp	Spectrum of the Composite Series
spciir	Spectrum of the Indirect Modified Irregular
spcirr	Spectrum of the Modified Irregular
spcisa	Spectrum of the Indirect Seasonally Adjusted Series
spcori	Spectrum of the Original Series
spcrsd	Spectrum of the regARIMA Model Residuals
spcsa	Spectrum of the Seasonally Adjusted Series
tc	Temporary Change Outliers
trn	Final Trend-Cycle Component
trnhst	History of the Trend Values
usrdef	User-Defined Regression Factors
xeastr	Easter Factors
xhol	Holiday Factors From Irregular Regression
xtd	Trading Day Factors From Irregular Regression
xtrm	Final Extreme Value Adjustment Factors