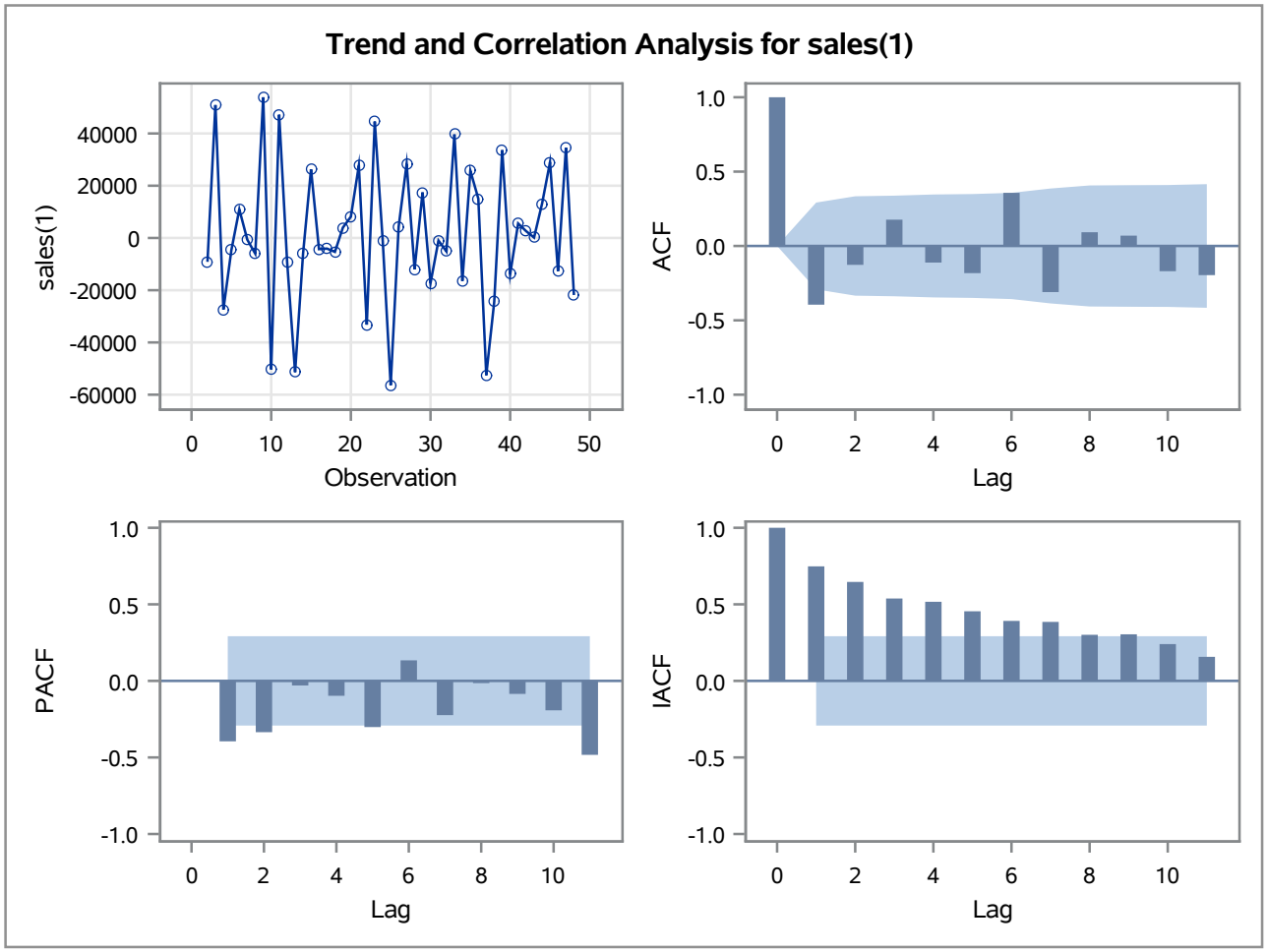
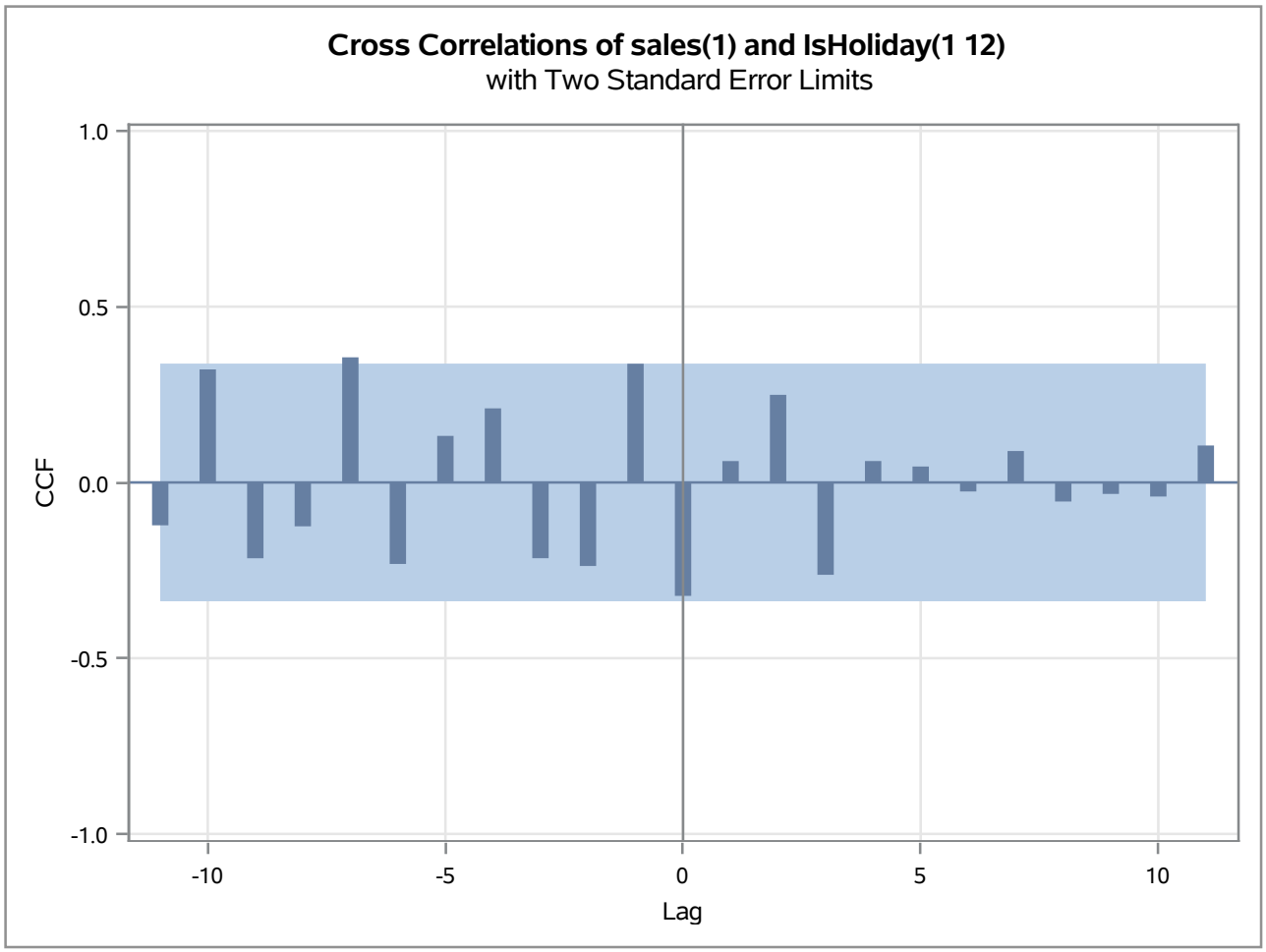
Name of Variable = sales	
Period(s) of Differencing	1
Mean of Working Series	1628.263
Standard Deviation	26754.34
Number of Observations	47
Observation(s) eliminated by differencing	1

Autocorrelation Check for White Noise									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	19.93	6	0.0029	-0.395	-0.127	0.177	-0.112	-0.183	0.357

Variable IsHoliday has been differenced.

Correlation of sales and IsHoliday	
Period(s) of Differencing	1,12
Variance of input =	0.228571
Number of Observations	35
Observation(s) eliminated by differencing	13





Warning: The model defined by the new estimates is unstable. The iteration process has been terminated.

Warning: Estimates may not have converged.

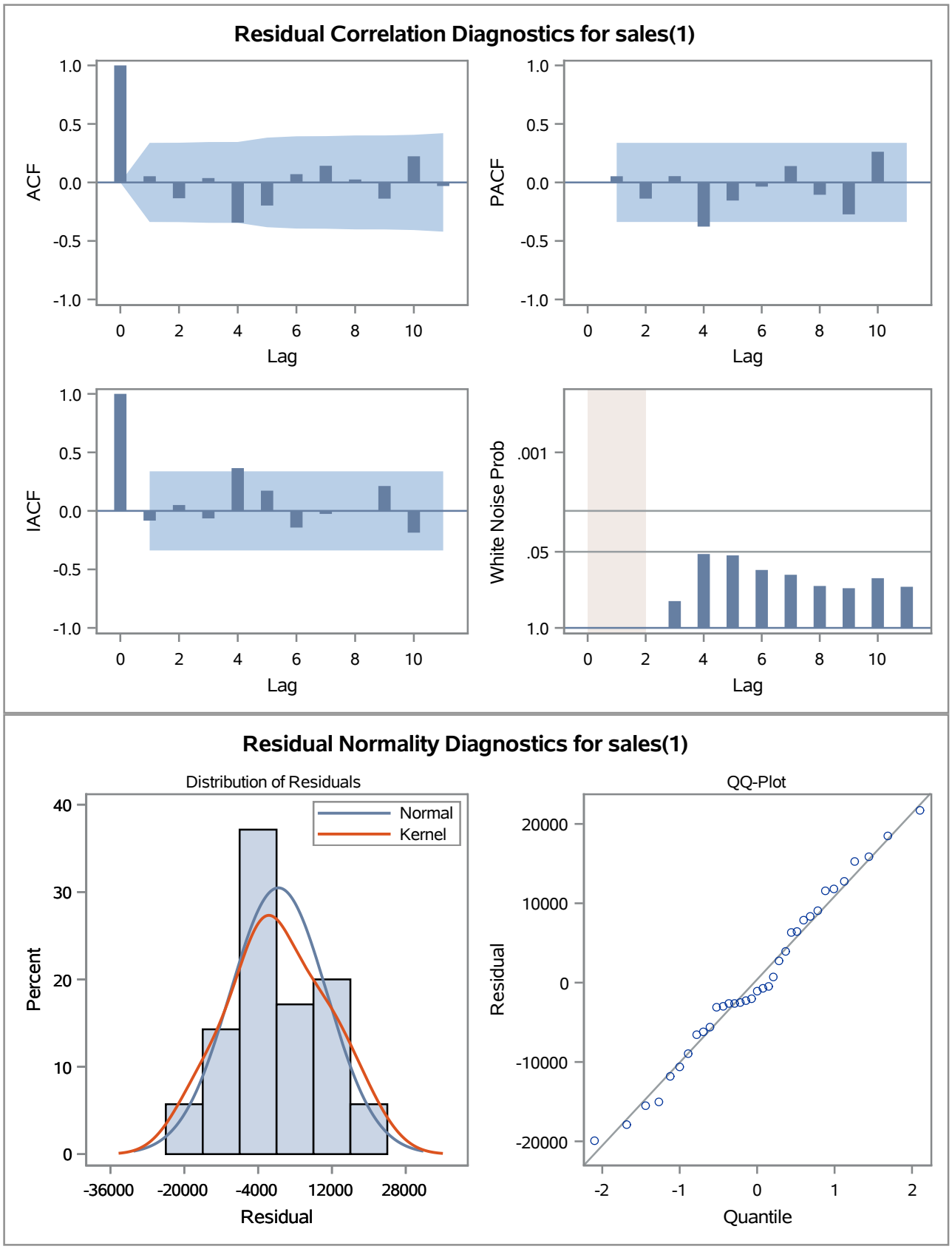
ARIMA Estimation Optimization Summary	
Estimation Method	Maximum Likelihood
Parameters Estimated	4
Termination Criteria	Maximum Relative Change in Estimates
Iteration Stopping Value	0.001
Criteria Value	31.42649
Maximum Absolute Value of Gradient	1.0347E9
R-Square Change from Last Iteration	0.378818
Objective Function	Log Gaussian Likelihood
Objective Function Value	-381.748
Marquardt's Lambda Coefficient	1E-6
Numerical Derivative Perturbation Delta	0.001
Iterations	5
Warning Message	Estimates may not have converged.

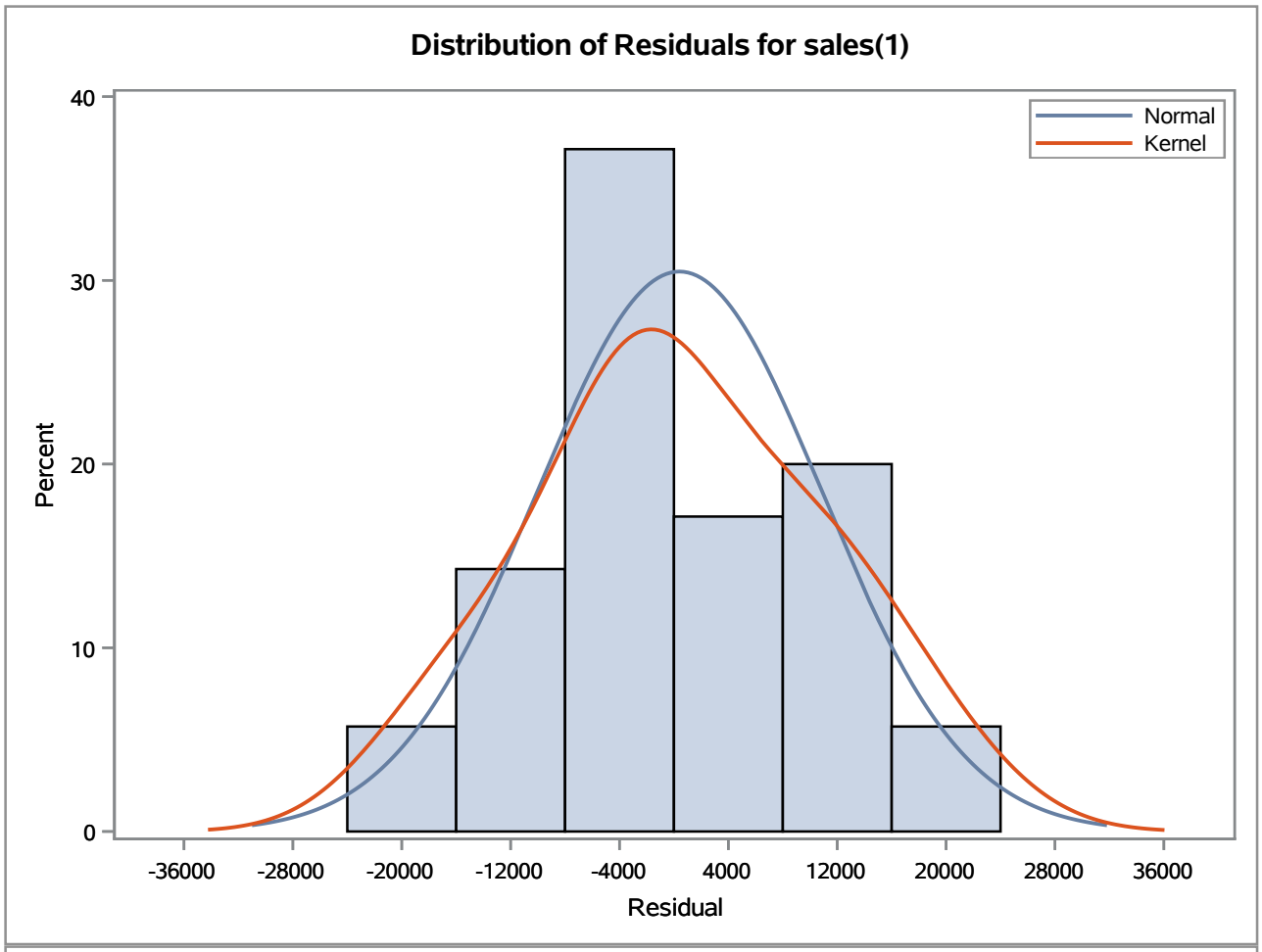
Maximum Likelihood Estimation							
Parameter	Estimate	Standard Error	t Value	Approx Pr > |t|	Lag	Variable	Shift
MU	1154.7	241.32025	4.78	<.0001	0	sales	0
MA1,1	0.99986	12.46360	0.08	0.9361	1	sales	0
AR1,1	0.85669	0.07114	12.04	<.0001	12	sales	0
NUM1	-12001.4	4042.4	-2.97	0.0030	0	IsHoliday	0

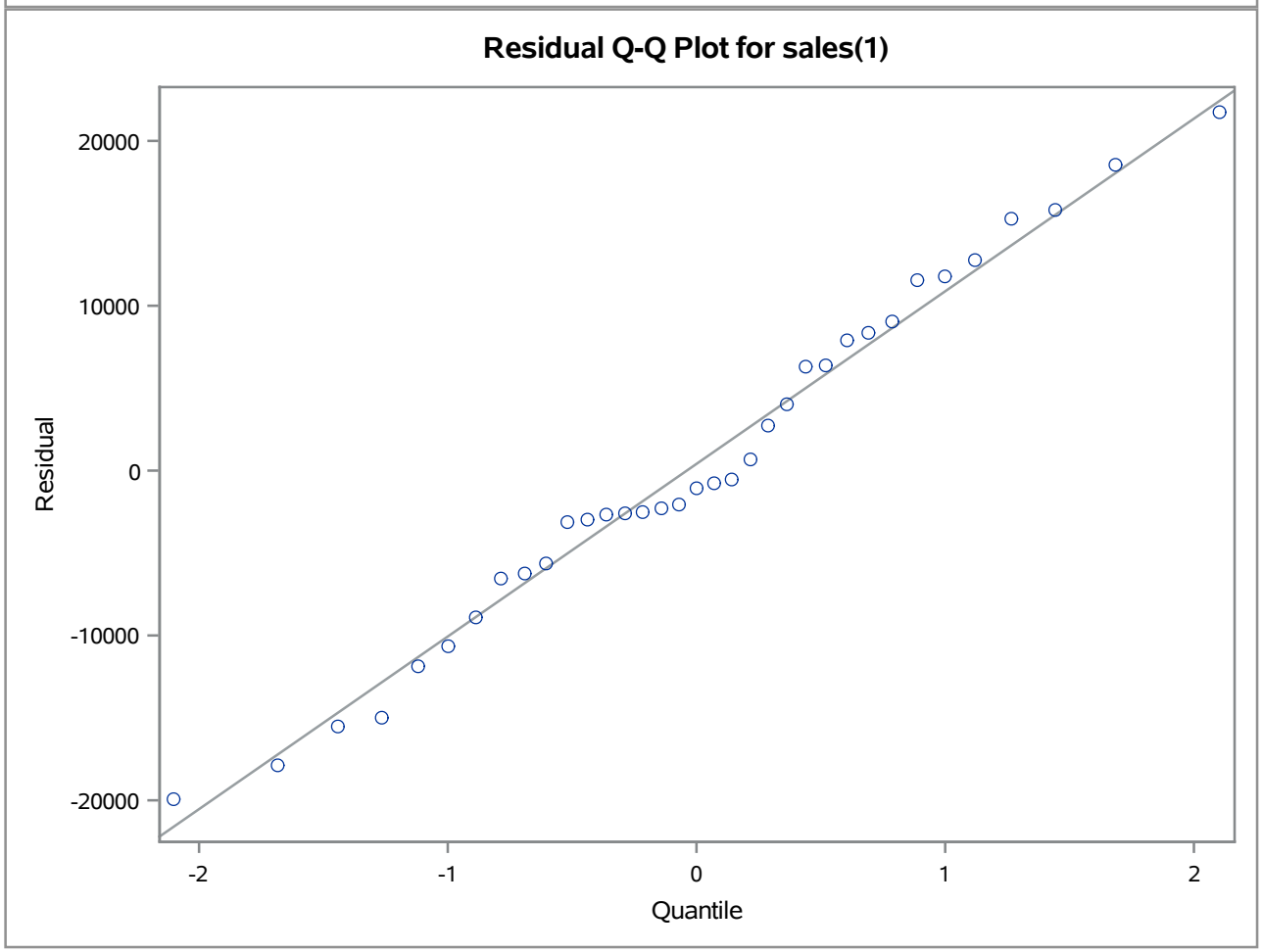
Constant Estimate	165.4762
Variance Estimate	1.2043E8
Std Error Estimate	10974.26
AIC	771.4969
SBC	777.7183
Number of Residuals	35

Correlations of Parameter Estimates					
Variable	Parameter	sales MU	sales MA1,1	sales AR1,1	IsHoliday NUM1
sales	MU	1.000	-0.783	-0.076	0.162
sales	MA1,1	-0.783	1.000	-0.060	-0.359
sales	AR1,1	-0.076	-0.060	1.000	0.266
IsHoliday	NUM1	0.162	-0.359	0.266	1.000

Autocorrelation Check of Residuals									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	7.67	4	0.1045	0.056	-0.133	0.039	-0.342	-0.197	0.070
12	13.90	10	0.1778	0.142	0.025	-0.138	0.222	-0.031	-0.174
18	23.39	16	0.1037	0.305	-0.011	-0.099	0.064	-0.155	-0.133
24	25.61	22	0.2689	-0.086	0.057	0.090	0.016	0.073	-0.001


Residual Correlation Diagnostics for sales(1)
ACF
PACF
IACF
White Noise Prob
Lag
Residual Normality Diagnostics for sales(1)
Distribution of Residuals
Normal
Kernel
Percent
Residual
QQ-Plot
Residual
Quantile


Distribution of Residuals for sales(1)
Normal
Kernel
Percent
40
30
20
10
0
-36000
-28000
-20000
-12000
-4000
4000
12000
20000
28000
36000
Residual


Residual Q-Q Plot for sales(1)
Residual
20000
10000
0
-10000
-20000
-2
-1
0
1
2
Quantile

Model for variable sales	
Estimated Intercept	1154.703
Period(s) of Differencing	1

Autoregressive Factors	
Factor 1:	1 - 0.85669 B**(12)

Moving Average Factors	
Factor 1:	1 - 0.99986 B**(1)

Input Number 1	
Input Variable	IsHoliday
Period(s) of Differencing	1,12
Overall Regression Factor	-12001.4

Warning: The ID value for observation 3 is the same as the ID value for the last observation according to ID variable ORDER_DATE.

Warning: There are gaps in the interval for observation 5 according to ID variable ORDER_DATE.

Warning: The ID value for observation 6 is the same as the ID value for the last observation according to ID variable ORDER_DATE.

Warning: There are gaps in the interval for observation 8 according to ID variable ORDER_DATE.

Warning: The ID value for observation 9 is the same as the ID value for the last observation according to ID variable ORDER_DATE.

Warning: There are gaps in the interval for observation 10 according to ID variable ORDER_DATE.

Warning: The ID value for observation 12 is the same as the ID value for the last observation according to ID variable ORDER_DATE.

Warning: There are gaps in the interval for observation 13 according to ID variable ORDER_DATE.

Warning: The ID value for observation 15 is the same as the ID value for the last observation according to ID variable ORDER_DATE.

Warning: There are gaps in the interval for observation 16 according to ID variable ORDER_DATE.

Warning: The ID value for observation 18 is the same as the ID value for the last observation according to ID variable ORDER_DATE.

Warning: There are gaps in the interval for observation 19 according to ID variable ORDER_DATE.

Note: Further warnings will not be printed.

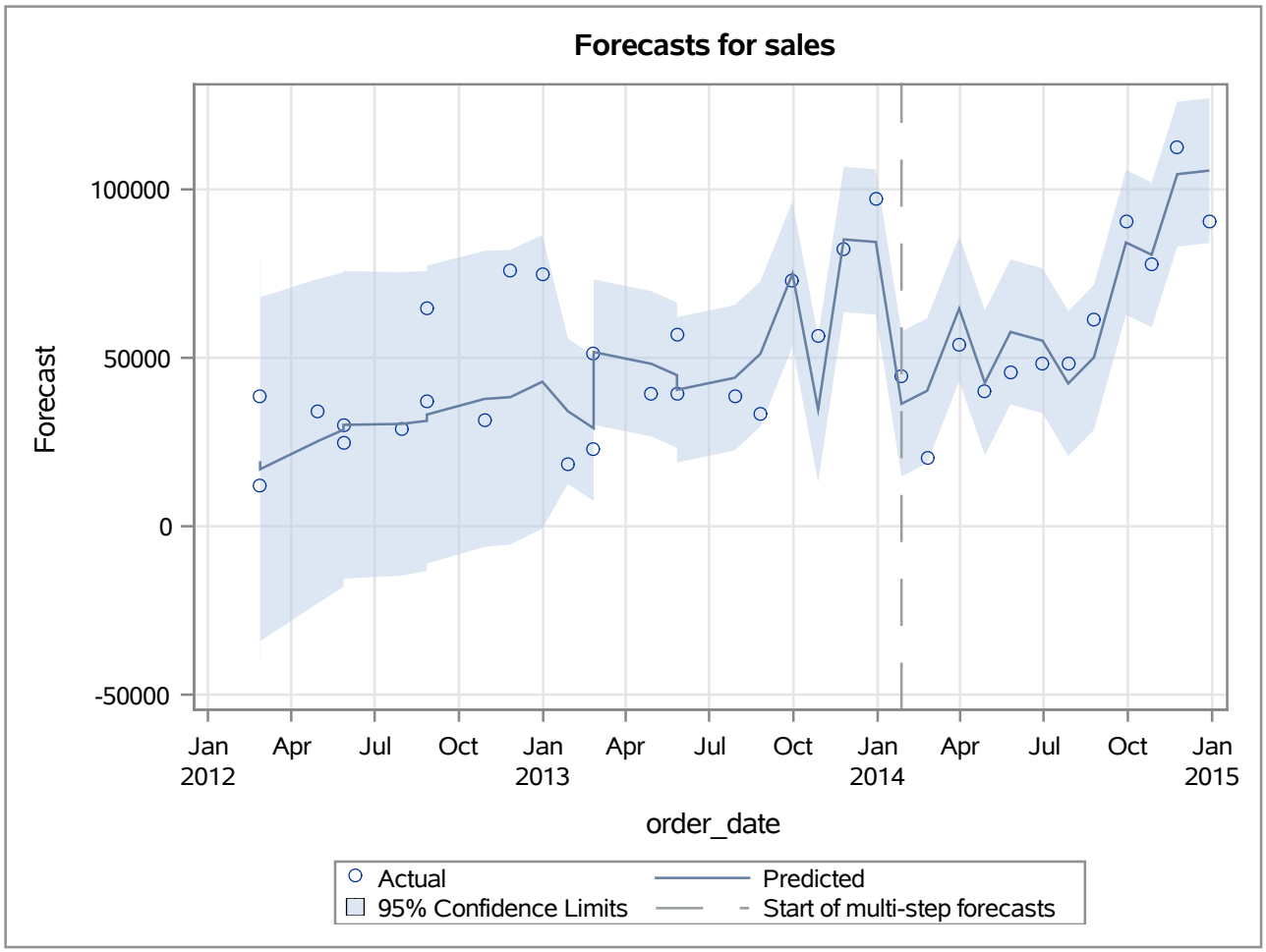
Warning: The ID value for observation 21 is the same as the ID value for the last observation according to ID variable ORDER_DATE.

Warning: The ID value for observation 27 is the same as the ID value for the last observation according to ID variable ORDER_DATE.

Warning: The ID value for observation 30 is the same as the ID value for the last observation according to ID variable ORDER_DATE.

Forecasts for variable sales						
Obs	**Forecast**	**Std Error**	**95% Confidence Limits**		**Actual**	**Residual**
14	19328.7788	30085.505	-39637.7268	78295.2843	12210.8670	-7117.9118
15	16924.5260	26054.811	-34141.9659	67991.0180	38466.7960	21542.2700
16	25259.9861	24564.712	-22885.9644	73405.9366	34195.2085	8935.2224
17	28648.4950	23784.680	-17968.6212	75265.6113	30131.6865	1483.1915
18	30099.8366	23304.132	-15575.4228	75775.0959	24797.2920	-5302.5446
19	30370.7822	22978.184	-14665.6311	75407.1954	28765.3250	-1605.4572
20	31296.1343	22742.504	-13278.3550	75870.6235	36898.3322	5602.1979
21	33151.1124	22564.129	-11073.7677	77375.9926	64595.9180	31444.8056

Forecasts for variable sales						
Obs	Forecast	Std Error	95% Confidence Limits		Actual	Residual
22	37799.6844	22424.412	-6151.3550	81750.7238	31404.9235	-6394.7609
23	38314.9112	22312.008	-5415.8210	82045.6434	75972.5635	37657.6523
24	42893.0396	22219.618	-656.6123	86442.6915	74919.5212	32026.4816
25	34135.1333	11008.736	12558.4081	55711.8585	18542.4910	-15592.6423
26	29092.3041	11008.511	7516.0194	50668.5888	22867.7110	-6224.5931
27	51711.5368	11008.289	30135.6871	73287.3866	51186.2170	-525.3198
28	48214.2556	11008.070	26638.8353	69789.6759	39248.5930	-8965.6626
29	44842.3107	11007.853	23267.3145	66417.3069	56691.0770	11848.7663
30	40511.6904	11007.640	18937.1130	62086.2678	39430.4430	-1081.2474
31	44069.8586	11007.429	22495.6948	65644.0223	38440.7550	-5629.1036
32	51168.1800	11007.220	29594.4248	72741.9353	33265.5643	-17902.6157
33	74952.4751	11007.014	53379.1234	96525.8268	72908.1089	-2044.3662
34	34669.6317	11006.811	13096.6787	56242.5847	56463.1300	21793.4983
35	85149.0189	11006.610	63576.4597	106721.5781	82192.3228	-2956.6961
36	84394.5972	11006.411	62822.4271	105966.7672	97237.4170	12842.8198
37	36338.9231	10974.261	14829.7660	57848.0802	44703.1420	8364.2189
38	40209.7881	10974.262	18700.6308	61718.9454	20283.5134	-19926.2747
39	64635.5502	10974.262	43126.3927	86144.7078	53908.9620	-10726.5882
40	42572.7670	10974.262	21063.6093	64081.9248	40112.4209	-2460.3461
41	57681.1095	10974.262	36171.9516	79190.2675	45651.2362	-12029.8733
42	55060.8813	10974.262	33551.7232	76570.0395	48259.7487	-6801.1326
43	42377.1260	10974.262	20867.9676	63886.2844	48428.3650	6051.2390
44	50110.4210	10974.262	28601.2624	71619.5796	61516.0860	11405.6650
45	84237.4157	10974.262	62728.2569	105746.5745	90488.7220	6251.3063
46	80596.0819	10974.262	59086.9229	102105.2409	77793.7552	-2802.3267
47	104523.4679	10974.262	83014.3087	126032.6271	112326.4710	7803.0031
48	105576.6096	10974.263	84067.4502	127085.7690	90474.6008	-15102.0088



Outlier Detection Summary	
Maximum number searched	1
Number found	1
Significance used	0.05

Outlier Details				
Obs	**Type**	**Estimate**	**Chi-Square**	**Approx Prob>ChiSq**
22	Additive	-21430.7	4.77	0.0290

Series	Model	Holdback Periods	MAPE	MAE	MSE	RMSE
sales	work.SARIMAX_HOLI	48	18.39%	7838.41	144231608.42	12009.65