

Local Climatological Data

Annual Summary With Comparative Data

1974

RICHMOND, VIRGINIA

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Narrative Climatological Summary

Richmond is located in east-central Virginia at the head of navigation on the James River and along a line separating the Coastal Plains (Tidewater Virginia) from the Piedmont. The Blue Ridge Mountains lie about 90 miles to the west and the Chesapeake Bay 60 miles to the east. Elevations range from a few feet above sea level along the river to a little over 300 feet in parts of the west section of the City.

The climate might be classified as modified continental. Summers are warm and humid and winters generally mild. The mountains to the west act as a partial barrier to outbreaks of cold, continental air in winter, the coldest air being delayed long enough to be modified, then further warmed as it subsides in its approach to Richmond. The open waters of the Chesapeake Bay and Atlantic Ocean contribute to the humid summers and mild winters. The coldest weather normally occurs in late December and in January, when low temperatures usually average in the upper twenties and the high temperatures in the upper forties. Temperatures seldom lower to zero. The record lowest temperature of minus 12° was recorded at the Airport in January 1940. The record high temperature of 107° occurred in August 1918 at Chimborazo Park.

Precipitation is rather uniformly distributed throughout the year. However, dry periods lasting several weeks do occur, especially in autumn when long periods of pleasant, mild weather are most common. There is considerable variability in total monthly amounts from year to year so that no one month can be depended upon to be normal. Snow has been recorded during seven of the twelve months. Falls of 4 inches or more occur on an average of once a year. Snow usually remains on the ground only 1 or 2 days at a time, but on one occasion it remained 21 days (January 23 to February 13, 1948). Ice storms (freezing rain or glaze) are not uncommon in winter, but they are seldom severe enough to do any considerable damage. A notable exception was the spectacular glaze storm of January 27 - 28, 1943, when heavy damage was done to trees and overhead transmission lines of all kinds.

The James River reaches tidewater at Richmond where flooding has occurred in every month of the year, most frequently in March and least in July. Hurricanes and less severe storms of tropical origin have been responsible for most of the flooding during the summer and early fall months. The flood of record at Richmond was Agnes in June, 1972 which produced on the 23rd crests 6 and one half feet above old high water marks dating back 200 years. Agnes was followed closely by serious flooding on October 7, 1972 and preceded by Camille on August 22, 1969 which is now the fourth greatest flood of record. In 1955 three hurricanes brought record rainfall to Richmond within a 6-week period. The most noteworthy of these were Hurricanes Connie and Diane that brought heavy rains five days apart.

Damaging storms occur mainly from snow and freezing rain in winter and from hurricanes, tornadoes, and severe thunderstorms at other seasons. Damage may be from wind, flooding, or rain, or from any combination of these. Tornadoes are infrequent but some notable occurrences have been observed within the Richmond area. The highest wind recorded has been 68 m.p.h. with a peak gust of 79 m.p.h. at the time of Hurricane Hazel, October 15, 1954.

The dates of the last freeze in spring and of the first in autumn mark the limits of the growing season for most crops. The average growing season is 216 days. May 11, 1966, has been the latest date in spring when a temperature of 32° or lower was recorded; October 5, 1965, has been the earliest date in autumn.

Meteorological Data For The Current Year

Station: RICHMOND, VIRGINIA											R.E.BYRD INTERNATIONAL AP.		Standard time used:		EASTERN		Latitude: 37° 30' N		Longitude: 77° 20' W		Elevation (ground): 164 feet		Year: 1974																
Month	Temperature °F						Precipitation in inches						Relative humidity, pct.						Wind						Number of days						Average station pressure mb.								
	Averages			Extremes			Degree days Base 65 °F			Water equivalent			Snow, Ice pellets			Hour			Resultant			Fastest mile			Sunrise to sunset			Temperature °F											
	Daily maximum	Daily minimum	Monthly	Highest Date	Lowest Date	Heating Cooling	Total	Greatest in 24 hrs.	Date	Total	Greatest in 24 hrs.	Date	Hour	Hour	Hour	19	Direction	Speed m.p.h.	Average speed m.p.h.	Direction	Speed m.p.h.	Direction	Speed m.p.h.	Percent of possible sunshine	Average sky cover, tenths	Average sunrise to sunset	Maximum	Minimum	Elev.										
JAN	55.0	36.6	45.8	76	23	19	13	589	0	3.21	0.65	3-4	T	T	14	82	86	67	74	16	0.5	6.6	30	NW	28	33	8.0	3	20	13	9	0	1014.6	177	feet m.s.l.				
FEB	51.2	28.9	40.1	71	22	17	27	691	0	2.54	0.56	22	5.0	4.9	8	71	77	53	61	30	1.4	8.5	33	SW	22	61	6.3	7	10	11	1	0	1009.3	177	feet m.s.l.				
MAR	62.7	38.0	50.4	84	8	21	26	455	10	3.79	1.42	29-30	T	T	12	71	77	50	57	28	1.7	9.0	35	SW	16	57	7.4	4	8	19	8	0	1009.5	177	feet m.s.l.				
APR	73.9	45.8	59.9	94	29	27	7	204	58	1.58	0.63	22-23	0.0	0.0	65	73	41	49	24	3.6	9.1	27	NW	14	4	59	5.9	7	10	13	7	0	1010.5	177	feet m.s.l.				
MAY	76.3	55.2	65.8	94	17	37	8	75	106	3.02	0.94	26-27	0.0	0.0	80	78	57	64	20	0.6	7.6	31	NW	12	63	6.6	6	7	18	12	0	1008.5	177	feet m.s.l.					
JUN	81.4	59.7	70.6	96	10	20	4	180	1.80	0.70	1-2	0.0	0.0	89	86	60	69	01	0.3	6.6	27	NW	12	61	7.4	3	10	17	10	0	1008.5	177	feet m.s.l.						
JUL	88.8	64.9	76.9	98	15	55	23	0	377	2.25	1.45	26-27	0.0	0.0	84	82	49	59	23	1.2	6.2	18	NW	15	73	6.4	7	10	14	5	0	1010.5	177	feet m.s.l.					
AUG	84.8	66.6	75.7	92	29	55	12	0	340	6.84	3.25	6-7	0.0	0.0	92	90	63	80	16	1.7	5.7	18	N	17	52	7.6	1	11	19	15	0	1012.5	177	feet m.s.l.					
SEP	78.0	56.7	67.4	89	13	35	24	62	141	4.83	2.85	6-7	0.0	0.0	90	90	60	79	34	2.0	5.9	21	W	29	60	5.9	9	12	9	0	0	1011.5	177	feet m.s.l.					
OCT	70.0	40.7	55.4	84	15	24	22	310	21	0.39	0.39	15-16	0.0	0.0	84	87	40	69	01	1.2	5.4	21	NW	3	72	4.1	6	16	6	9	1	0	1017.3	177	feet m.s.l.				
NOV	60.8	36.2	48.5	86	1	14	27	513	26	1.23	0.54	25	0.0	0.0	77	84	47	66	27	2.1	7.1	26	N	21	73	4.6	14	8	8	2	0	1012.2	177	feet m.s.l.					
DEC	52.6	30.8	41.7	70	30	19	5	715	0	4.22	1.42	1	T	T	19	79	82	57	70	26	1.8	6.6	29	E	1	55	6.8	9	4	18	12	0	1010.8	177	feet m.s.l.				
YEAR	69.6	46.7	58.2	98	15	14	27	3619	1259	35.70	3.25	6-7	AUG	B	8	81	83	54	66	25	0.9	7.0	35	SW	16	61	6.4	86	101	178	106	1	32	35	21	0	1011.3	177	feet m.s.l.

Normals, Means, And Extremes

Month	Temperatures °F						Normal Degree days Base 65 °F		Precipitation in inches						Relative humidity, pct.						Wind						Mean number of days						Average station pressure mb.							
	Normal			Extremes					Water equivalent			Snow, Ice pellets			Hour			Resultant			Fastest mile			Sunrise to sunset			Temperature °F													
	Daily maximum	Daily minimum	Monthly	Record highest	Record lowest	Year	Normal	Maximum monthly	Year	Normal	Maximum monthly	Year	Normal	Maximum monthly	Year	Normal	Maximum monthly	Year	Normal	Prevailing direction	Speed mph.	Direction	Speed mph.	Direction	Speed mph.	Direction	Clear	Partly cloudy	Cloudy	90° above	32° and below	0° and below	Elev.							
(a)	45	27.6	37.5	80	1950	-12	1940	853	0	2.86	5.95	1962	1.08	1951	3.31	1962	28.5	1940	77	81	57	69	8.0	S	43	NW	1971	51	6.5	8	7	16	10	1	* 3	21	* 1013.9	177	feet m.s.l.	
J	47.4	27.6	37.5	80	1950	-12	1940	853	0	3.01	5.91	1962	1.08	1951	3.31	1962	28.5	1940	77	74	52	63	8.7	NNE	45	SW	1951	55	6.1	9	6	13	19	1	* 19	* 1011.9	177	feet m.s.l.		
F	49.9	28.8	39.4	83	1932	-10	1936	717	0	3.38	5.85	1944	0.98	1968	1.91	1973	17.1	1947	74	79	52	63	9.0	W	42	SE	1932	59	6.2	8	9	14	11	1	* 2	* 1010.2	177	feet m.s.l.		
M	58.2	35.5	46.9	93	1928	11	1960	569	8	2.77	5.85	1944	0.94	1966	2.04	1942	19.7	1960	12.1	1962	73	78	48	59	9.0	W	40	N	1972	62	6.1	9	13	9	1	* 2	* 1009.5	177	feet m.s.l.	
A	70.3	45.2	57.8	96	1960	26	1964	226	10	2.77	5.32	1952	0.62	1963	2.07	1952	2.0	1940	74	75	45	50	8.9	S	40	N	1962	64	6.2	7	11	13	11	0	* 2	* 1007.8	177	feet m.s.l.		
M	78.4	54.5	66.5	100	1961	31	1956	64	111	3.42	8.87	1972	0.87	1965	2.93	1972	0.0	0.0	83	79	50	65	7.8	SSW	45	N	1952	67	6.0	7	12	11	10	0	* 2	* 1009.4	177	feet m.s.l.		
J	85.4	62.9	74.2	104	1952	40	1967	0	276	3.52	9.24	1938	0.91	1960	4.61	1963	0.0	0.0	87	82	54	68	7.2	S	52	NH	1952	67	6.0	7	12	11	10	0	* 2	* 1009.4	177	feet m.s.l.		
J	88.2	67.5	77.9	104	1936	51	1965	0	400	5.63	18.87	1945	0.52	1963	5.73	1969	0.0	0.0	89	85	56	72	6.8	SSW	56	NW	1955	66	6.1	7	12	12	11	0	* 2	* 1010.4	177	feet m.s.l.		
A	86.6	65.9	76.3	102	1953	46	1934	0	350	5.06	14.10	1955	0.52	1943	8.79	1955	0.0	0.0	90	88	57	76	6.4	S	54	SE	1952	63	5.7	10	8	12	12	0	* 2	* 1011.7	177	feet m.s.l.		
S	80.9	59.0	70.0	103	1954	35	1974	21	171	3.58	8.69	1945	0.69	1954	3.82	1955	0.0	0.0	90	89	56	79	6.6	S	45	SE	1952	63	5.7	10	8	12	8	0	* 2	* 1011.9	177	feet m.s.l.		
Q	71.2	47.4	59.3	99	1941	21	1962	203	27	2.94	9.39	1971	0.30	1963	6.50	1961	T	1972	87	89	52	77	6.9	NNE	68	SE	1954	60	5.2	12	7	12	7	0	* 2	* 1014.8	177	feet m.s.l.		
N	60.6	37.3	49.0	86	1974	10	1933	480	0	3.20	7.64	1959	0.30	1965	4.07	1956	7.3	1953	7.3	1953	80	84	50	70	7.5	S	35	SE	1972	50	5.6	10	8	12	8	* 1	* 1012.6	177	feet m.s.l.	
D	49.1	28.8	39.0	80	1971	-1	1942	806	0	3.22	7.07	1973	0.72	1965	3.16	1958	12.5	1958	7.5	1966	77	81	55	70	7.5	SW	40	N	1968	51	6.2	10	6	15	9	1	* 2	* 1011.7	177	feet m.s.l.
YR	68.8	46.7	57.8	104	1952	-12	1940	3939	1353	42.59	18.87	1945	0.30	1963	8.79	1955	28.5	1940	21.6	1940	82	83	53	69																

Average Temperature

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1935	34.5	38.7	51.9	53.5	62.9	73.6	77.2	75.3	67.6	58.3	51.5	31.6	56.4
1936	31.4	33.7	51.2	53.1	66.5	73.7	79.7	76.5	71.6	59.8	46.3	40.1	57.0
1937	46.0	38.3	43.3	55.3	64.8	76.0	76.8	77.2	66.0	55.0	46.2	38.4	57.0
1938	37.2	43.1	53.6	59.9	64.9	71.6	76.8	78.3	68.4	57.7	49.9	40.3	58.5
1939	41.6	44.8	48.8	56.0	66.9	76.4	75.7	77.1	71.8	59.0	44.8	39.8	58.6
1940	24.2	38.2	43.3	52.4	65.0	74.7	76.0	73.6	66.2	55.8	47.4	42.5	54.9
1941	35.2	34.2	40.8	59.8	66.8	73.0	78.3	73.8	72.2	64.7	48.7	41.9	57.6
#1942	34.2	35.2	48.0	58.8	69.5	75.2	79.4	75.2	71.3	60.8	50.0	37.1	57.9
1943	40.0	41.5	47.0	53.9	69.0	72.4	78.5	78.4	68.4	57.3	47.5	38.6	58.3
1944	38.6	40.4	45.2	56.2	71.6	76.4	77.7	75.4	71.2	57.9	48.2	36.1	57.9
1945	34.2	40.8	58.6	61.4	63.9	75.7	76.2	75.2	73.6	57.8	49.6	33.4	58.4
#1946	38.0	41.7	53.8	57.2	65.8	72.8	75.4	72.6	70.0	60.9	52.9	43.4	58.8
1947	44.6	33.5	40.0	57.5	67.0	72.2	74.8	78.5	70.1	63.7	46.4	38.4	57.2
1948	31.1	39.8	50.8	57.7	66.3	74.4	78.2	75.7	68.6	56.2	52.9	42.0	57.8
1949	45.2	46.5	48.6	55.7	66.0	75.2	80.1	76.6	67.4	62.5	49.0	42.4	59.6
#1950	49.7	40.7	44.4	54.7	65.0	74.2	76.8	75.5	68.2	61.2	47.3	36.1	57.8
1951	40.8	41.3	46.8	56.6	64.6	74.0	78.6	76.0	70.0	61.6	44.7	42.0	58.1
1952	42.4	42.2	46.3	58.1	65.4	77.6	80.4	76.4	69.2	55.2	49.4	39.2	58.5
1953	42.9	43.4	48.3	58.0	71.5	75.2	75.9	77.3	70.0	60.7	48.5	42.5	59.9
1954	38.0	44.9	47.0	61.2	63.0	74.6	78.6	76.8	74.4	62.3	46.1	38.2	58.8
1955	35.8	40.1	50.2	60.8	67.2	70.1	81.3	78.7	70.6	59.5	46.4	34.8	58.0
1956	36.0	43.0	46.3	55.5	65.0	74.7	77.8	76.5	67.9	60.9	47.6	48.9	58.3
1957	35.2	43.3	47.2	61.5	67.8	76.2	78.4	74.6	71.6	54.6	50.3	43.0	58.7
1958	34.6	33.8	42.3	57.5	65.7	71.3	80.2	76.4	69.1	58.7	51.2	33.4	56.2
1959	37.5	41.6	47.3	59.3	69.4	74.8	77.9	79.0	70.8	61.4	47.3	41.6	59.0
1960	38.8	39.3	35.9	61.8	64.9	73.7	76.3	77.5	69.3	57.1	50.1	34.6	56.6
1961	33.5	42.2	50.8	53.0	63.6	72.8	74.8	77.1	73.3	58.1	50.1	37.1	57.5
1962	36.6	39.7	45.0	57.5	70.6	74.8	74.6	66.2	60.3	47.2	36.1	36.9	56.9
1963	35.9	33.3	50.8	59.2	64.0	72.0	76.1	75.7	65.5	58.6	50.1	32.4	56.1
1964	38.1	37.2	47.6	55.4	66.6	73.1	75.8	73.1	67.1	53.4	42.9	35.8	56.8
1965	35.6	38.8	43.0	53.9	69.0	70.7	74.9	75.0	70.2	56.1	48.2	41.3	56.6
1966	31.1	37.7	47.5	52.8	63.1	71.4	76.6	76.2	57.2	55.5	49.5	38.0	55.4
1967	40.9	34.8	46.6	59.8	60.7	72.1	76.6	75.5	65.7	57.2	44.0	41.9	56.2
1968	33.9	34.2	52.0	58.8	64.7	74.7	78.9	76.9	61.9	51.3	37.0	38.1	58.1
1969	33.9	36.8	42.3	57.6	65.3	75.7	78.5	75.1	66.1	58.5	46.8	35.5	56.2
1970	30.1	37.1	42.9	58.2	69.1	75.7	78.0	74.0	62.9	49.9	40.4	38.1	58.1
1971	33.8	39.5	44.5	55.0	63.3	74.7	76.6	75.3	71.4	64.6	48.5	48.0	57.9
1972	37.6	47.2	56.2	64.6	70.1	77.1	75.2	70.1	55.8	47.9	45.9	37.4	57.4
1973	37.6	38.5	52.6	57.9	65.1	76.0	77.5	77.5	72.3	60.6	51.3	40.8	59.0
1974	45.0	40.1	50.6	59.9	65.0	70.6	76.9	75.7	67.4	55.4	48.5	41.7	58.2
RECORD	37.9	39.3	46.9	56.9	66.1	74.0	77.6	76.1	70.0	58.8	48.6	39.6	57.7
MEAN	47.8	49.9	55.2	69.4	78.0	85.1	87.9	86.2	80.8	70.8	60.1	49.7	68.7
MAX	28.0	28.7	35.5	44.4	54.2	62.6	67.3	65.9	59.1	46.8	37.0	29.5	46.6
MIN	28.0	28.7	35.5	44.4	54.2	62.6	67.3	65.9	59.1	46.8	37.0	29.5	46.6

Heating Degree Days

Season	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
1954-55	0	0	5	220	561	826	898	690	450	155	87	12	3884
1955-56	0	0	9	186	555	928	896	631	578	323	187	10	4223
1956-57	0	3	75	146	519	943	915	600	546	201	63	5	3566
1957-58	0	0	50	317	434	674	936	871	696	254	70	6	4308
1958-59	0	0	24	212	409	973	847	650	542	212	44	10	3923
1959-60	0	0	36	217	530	717	807	737	894	184	88	2	4212
1960-61	0	0	24	257	498	936	971	632	461	390	106	7	4223
1961-62	0	0	27	218	459	860	875	702	623	276	32	0	4072
1962-63	0	0	73	175	526	891	882	824	634	218	102	1	4199
1963-64	0	0	71	197	439	1004	826	801	537	306	74	12	4267
1964-65	0	0	32	352	402	676	909	726	674	339	17	34	4161
1965-66	0	6	25	275	498	726	1043	759	538	371	133	27	4401
1966-67	0	0	47	293	466	833	738	881	560	230	171	21	4196
1967-68	0	0	64	256	623	708	956	887	416	191	80	0	4187
1968-69	0	0	61	161	403	864	957	783	695	237	66	0	4166
1969-70	0	0	45	221	541	907	1076	778	677	231	51	0	4527
1970-71	0	0	12	124	445	756	960	709	627	295	104	3	4035
1971-72	0	0	11	512	512	748	788	554	286	58	21	3	3573
1972-73	0	0	17	285	513	588	843	735	394	247	79	0	3701
1973-74	0	0	5	163	414	744	589	691	455	204	75	5	3345
1974-75	0	0	62	310	513	715	106	180	340	141	21	0	1259

Cooling Degree Days

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1969	0	0	0	21	50	328	417	321	147	26	0	0	1350
1970	0	0	0	35	185	328	418	410	313	67	0	0	1736
1971	0	0	0	0	56	297	347	327	209	62	22	5	1345
1972	0	0	7	30	52	180	381	326	178	9	8	2	1171
1973	0	0	13	42	91	338	391	395	231	32	9	2	1544
1974	0	0	10	58	106	180	377	340	141	21	26	0	1259
1975	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0									

STATION LOCATION

RICHMOND, VIRGINIA

Location	Occupied from	Occupied to	Ailine distance and direction from previous location	Latitude North	Longitude West	Ground at tem- perature site	Elevation above						Sea level	Remarks
							Sea level	Ground						
<u>COOPERATIVE</u>														
High elevation in East Richmond	1/1880	2/1893				Est. 150								W. H. Pleasants; exact address unknown.
Near Southern RR Bridge	3/1893	3/1895				Est. 35								A. J. Duesberry, River Observer.
Westbrook Farms	4/1895	10/1897	4 mi. N	27° 36'	77° 24'	196								Capt. J. C. Shafer; temperatures only
<u>CITY</u>														
State Library Building Capitol Square	9/18/95	5/22/97	4 mi. S	37° 32'	77° 27'	142								Section Center; no observations
Chamber of Commerce Building, Ninth & Main Streets	5/22/97	5/31/00	3/8 mi. SW	37° 32'	77° 27'	104	107	98	98	89	89			Observational Program begun 10/5/97.
Times Building 10th & Bank Streets	5/31/00	6/30/05	1/8 mi. NE	37° 32'	77° 27'	115	92	82	82	76	76			
Mutual Assurance Bldg. Ninth & Main Streets	6/30/05	1/30/10	1/8 mi. SW			104	154	145	145	138	138			
Weather Bureau Building Chimborazo Park 3301 E Broad Street	1/30/10	7/01/53	1-1/2 mi.E	37° 32'	77° 25'	162	53	11	11	3	a4	3		Climatological observations were continuous at City Office sites 10/5/97 through 6/30/53. Observational program at Airport 7/1/39 to 9/24/42 and after 4/19/46. a - At this site 9/24/42 to 4/19/46 and after 6/1/50.
<u>AIRPORT</u>														
WB-CAA Building	7/15/25	9/24/42	None	37° 30'	77° 20'	158	#	5	5			3		CAA to 8/3/30, WBAS 8/3/30 to 5/26/35 and 7/14/38 to 9/24/42. # - 40 feet 8/3/30 to 5/26/35 estimated 40 feet 5/26/35 to 7/14/38 and estimated 50 feet to 9/24/42.
Army Hanger (Operations Annex)	9/24/42	4/19/46	1/2 mi.NNW	37° 30'	77° 20'	156	55	5	5			3		AF operation.
Old Airport Administration Building	4/19/46	6/01/50	1/3 mi.SSE	37° 30'	77° 20'	156	46	5	5			4		WBAS reopened.
Byrd Field † New Terminal Building † R. E. Byrd International Airport effective 2/18/71	6/01/50	Present	4/5 mi. N	37° 30'	77° 20'	c164	b20	d6	d6	e19	e19	a4		a - Installed 2700 feet ENE of thermometer site 6/26/59. b - 67 feet to 1/1/61. c - 162 feet to 6/26/59. d - Discontinued 6/26/59. e - 3 feet to 10/9/69.

Requests for additional climatic information should be addressed to: Director, National Climatic Center, Federal Building, Asheville, N. C. 28801

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