

Aviation Weather Services

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Pre-Flight Weather Briefings

- The Pre-flight Briefing is a DIALOGUE!
 - Your information:
 - Who you are (N Number, type of airplane, STUDENT!)
 - Type of flight (VFR / IFR)
 - Time of flight
 - Route of flight
 - Briefer's information:
 - Standard Briefing:
 - Full weather briefing
 - Current and forecast conditions
 - Winds and temperatures aloft
 - Other Information as required (Notams, PIREPS)
 - Abbreviated Briefing
 - Update previous briefing
 - Supplement data or specific information
 - Outlook Briefing
 - Initial forecast for 6+ hours out
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Aviation Routine Weather Report (METAR)

- Actual weather observations
 - Typically hourly, with special updates as needed
 - METAR is a routine report
 - SPECI in a non-routine report
 - Available at major and minor airports (KDET, KARB, KOZW)

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METAR KINK 121845Z 11012G18KT 15SM SKC 25/17 A3000  
METAR KBOI 121854Z 13004KT 30SM SCT150 17/6 A3015  
METAR KLAX 121852Z 25004KT 6SM BR SCT007 SCT250 16/15 A2991  
SPECI KMDW 121856Z 32005KT 1 1/2SM RA OVC007 17/16 A2980 RMK  
RAB35  
SPECI KJFK 121853Z 18004KT 1/2SM FG R04/2200 OVC005 20/18 A3006
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FIGURE 12.—Aviation Routine Weather Reports (METAR).

Pilot Weather Reports (PIREP)

- Actual Observations
- Follows a prescribed format
 - All altitudes are MSL
 - Turbulence is LGT, MDT, or SVR
 - Icing is CLR or RIME
 - Clouds are reported by type and heights

Location Time Altitude Aircraft Type Sky Cover
UA/OV KOKC-KTUL/TM 1800/FL120/TP BE90//SK BKN018-TOP055/OVC072-
TOP089/CLR ABV/TA M7/WV 08021/TB LGT 055-072/IC LGT-MOD RIME 072-089
Temperature Wind Turbulence Icing

Aviation Area Forecast (FA)

- ❑ Forecast of general weather affecting a large area (several states)
- ❑ Issued 3 times daily covering an 18 hour period
 - 12 hour forecast
 - Additional 6 hour outlook
- ❑ Provides a synopsis for the for the area
- ❑ Provides a forecast of VFR clouds and weather

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BOSC FA 241845
SYNOPSIS AND VFR CLDS/WX
SYNOPSIS VALID UNTIL 251300
CLDS/WX VALID UNTIL 250700..OTLK VALID 250700-251300
ME NH VT MA RI CT NY LO NJ PA OH LE WV MD DC DE VA AND CSTL WTRS

SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.
TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HGTS DENOTED BY AGL OR CIG.

SYNOPSIS...19Z CDFNT ALG A 160NE ACK-ENE LN...CONTG AS A QSTNRY
FNT ALG AN END-50SW MSS LN. BY 13Z...CDFNT ALG A 140ESE ACK-HTO
LN...CONTG AS A QSTNRY FNT ALG A HTO-SYR-YYZ LN. TROF ACRS CNTRL
PA INTO NPN VA. ...REYNOLDS..

OH LE
NRN HLF OH LE...SCT-BKN025 OVC045. CLD5 LYRD 150. SCT SHRA. WDLY
SCT TSRA. CB TOPS FL350. 23-01Z OVC020-030. VIS 3SM BR. OCNL -
RA. OTLK...IFR CIG BR FG.
SWRN QTR OH...BKN050-060 TOPS 100. OTLK...MVFR BR.
SERN QTR OH...SCT-BKN040 BKN070 TOPS 120. WDLY SCT-TSRA. 00Z
SCT-BKN030 OVC050. WDLY SCT-TSRA. CB TOPS FL350. OTLK...VFR
SHRA.

CHIC FA 241945
SYNOPSIS AND VFR CLDS/WX
SYNOPSIS VALID UNTIL 251400
CLDS/WX VALID UNTIL 250800..OTLK VALID 250800-251400
ND SD NE KS MN IA MO WI LM LS MI LH IL IN KY

SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.
TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HGTS DENOTED BY AGL OR CIG.

SYNOPSIS...LOW PRES AREA 20Z CNTRD OVR SERN WI FC5T MOV NEWD INTO
LH BY 12Z AND WKN. LOW PRES FCST DEEPEN OVR ERN CO DURG PD AND
MOV NR WRN KS BORDER BY 14Z. DVLPG CDFNT WL MOV EWD INTO S CNTRL
NE-CNTRL KS BY 14Z. ...SMITH.

UPR MI LS
WRN PTNS...AGL SCT030 SCT-BKN050. TOPS 080. 02-05Z BECMG CIG
OVC010 VIS 3-5SM BR. OTLK...IFR CIG BR.
ERN PTNS...CIG BKN020 OVC040. OCNL VIS 3-5SM -RA BR. TOPS FL200.
23Z CIG OVC010 VIS 3-5SM -RA BR. OTLK...IFR CIG BR.

LWR MI LM LH
CNTRL/NRN PTNS...CIG OVC010 VIS 3-5SM -RA BR. TOPS FL200.
OTLK...IFR CIG BR.

SRN THIRD...CIG OVC015-025. SCT -SHRA. TOPS 150. 00-02Z BECMG CIG
OVC010 VIS 3-5SM BR. TOPS 060. OTLK...IFR CIG BR.

IN
NRN HALF...CIG BKN035 BKN080. TOPS FL200. SCT -SHRA. 00Z CIG
BKN-SCT040 BKN-SCT060. TOPS 120. 06Z AGL SCT-BKN030. TOPS 080.
OCNL VIS 3-5SM BR. OTLK...MVFR CIG BR.
SRN HALF...AGL SCT050 SCT-BKN100. TOPS 120. 07Z AGL SCT 030
SCT100. OTLK...VFR.
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FIGURE 16.—Area Forecast.

Terminal Aerodrome Forecast (TAF)

- ❑ Cover major terminal areas (KDFW, KFNT)
- ❑ Issued 4 times daily beginning at 0000Z covering a 24 hour period
- ❑ Follows a prescribed format:
 - Type (TAF or TAF AMD)
 - ICAO identifier
 - Time of preparation and valid forecast times
 - Forecast meteorological conditions

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KMEM 121720Z 121818 20012KT 5SM HZ BKN030 PROB40 2022 1SM TSRA OVC008CB  
FM2200 33015G20KT P6SM BKN015 OVC025 PROB40 2202 3SM SHRA  
FM0200 35012KT OVC008 PROB40 0205 2SM -RASN BECMG 0608 02008KT BKN012  
BECMG 1012 00000KT 3SM BR SKC TEMPO 1214 1/2SM FG  
FM1600 VRB06KT P6SM SKC=
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Weather Depiction Charts

- ❑ Shows Highs, Lows and Fronts
- ❑ Graphic display of VFR, MVFR and IFR weather
- ❑ Individual station models show cloud coverage and heights

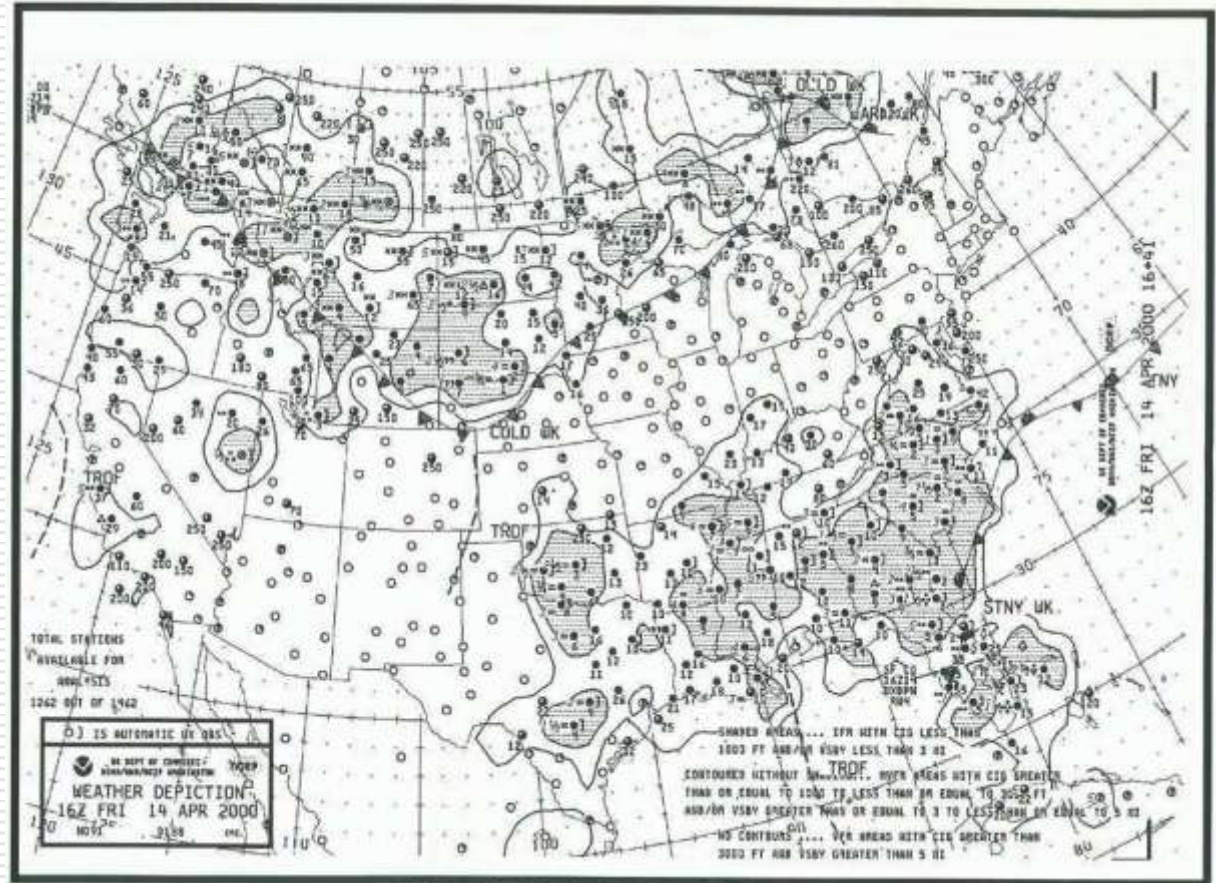


FIGURE 18.—Weather Depiction Chart.

Radar Products

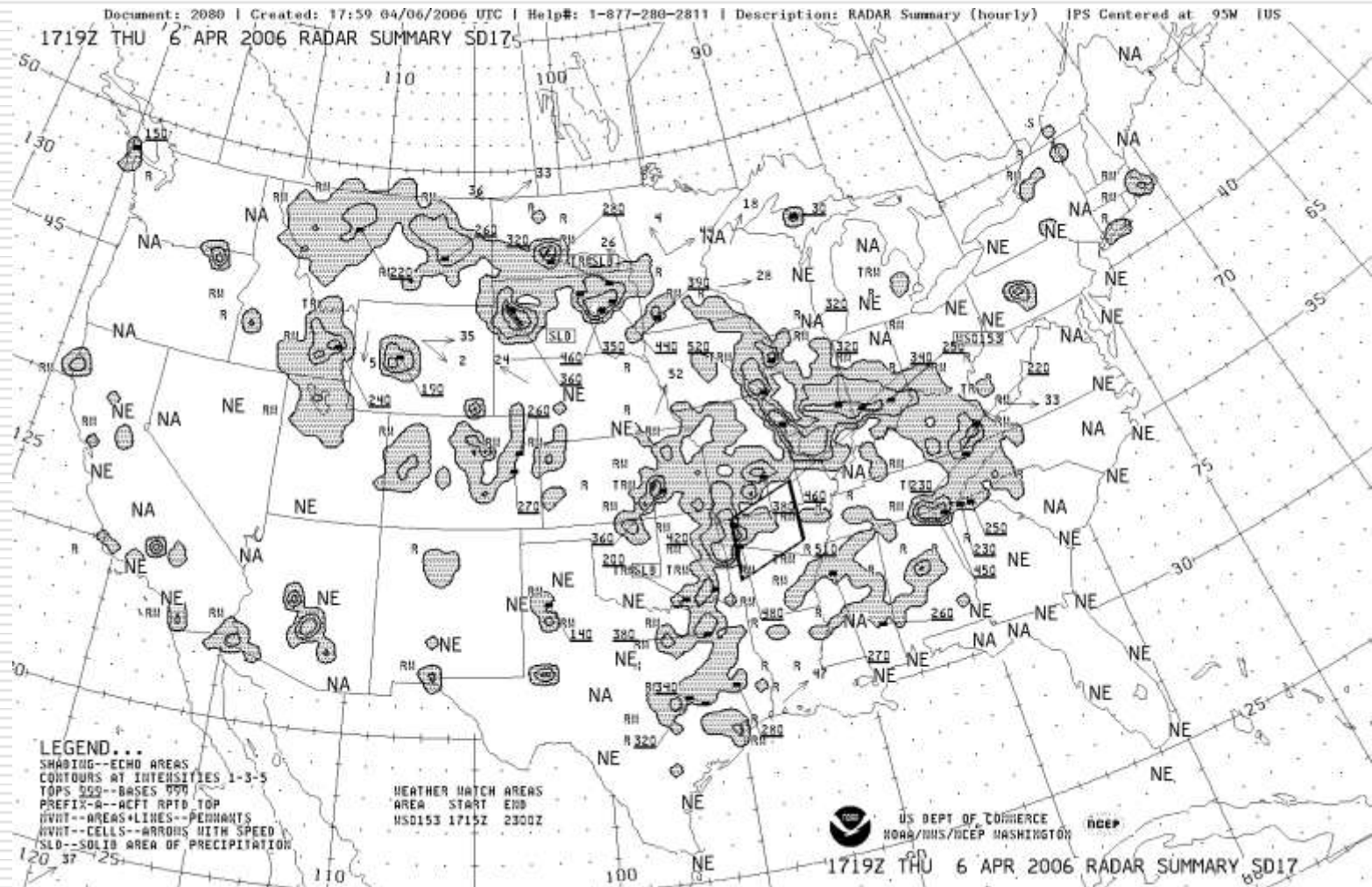
□ Radar Weather Reports

- Report precipitation and thunderstorm activity
- May include direction and speed, as well as base and height of precipitation
- Cloud bases and tops are not included

□ Radar Summary Charts

- Bases and Tops of clouds producing precipitation!
 - Intensities of clouds
 - Movements of cells
-

Radar Summary Chart



Enroute Products

- Enroute Flight Advisory Service (EFAS)
 - Designed to exchange weather information between pilots and Flight Service
 - Available from 5000' – 17,500', 6:00 AM – 10:00 PM
 - Flight Watch – 122.0
 - Transcribed Weather Broadcasts (TWEBS)
 - Continuous recordings broadcast on certain NDB and VOR facilities
 - Usually based on specific routes of flight
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Winds and Temperatures Aloft (FD)

- Wind direction and speed rules
 - Wind directions are in relation to true North and in knots
 - For wind direction > 360 , subtract 500 and add 100 to speed!
 - 9900 used for 'Light and Variable' (< 5 knots) winds

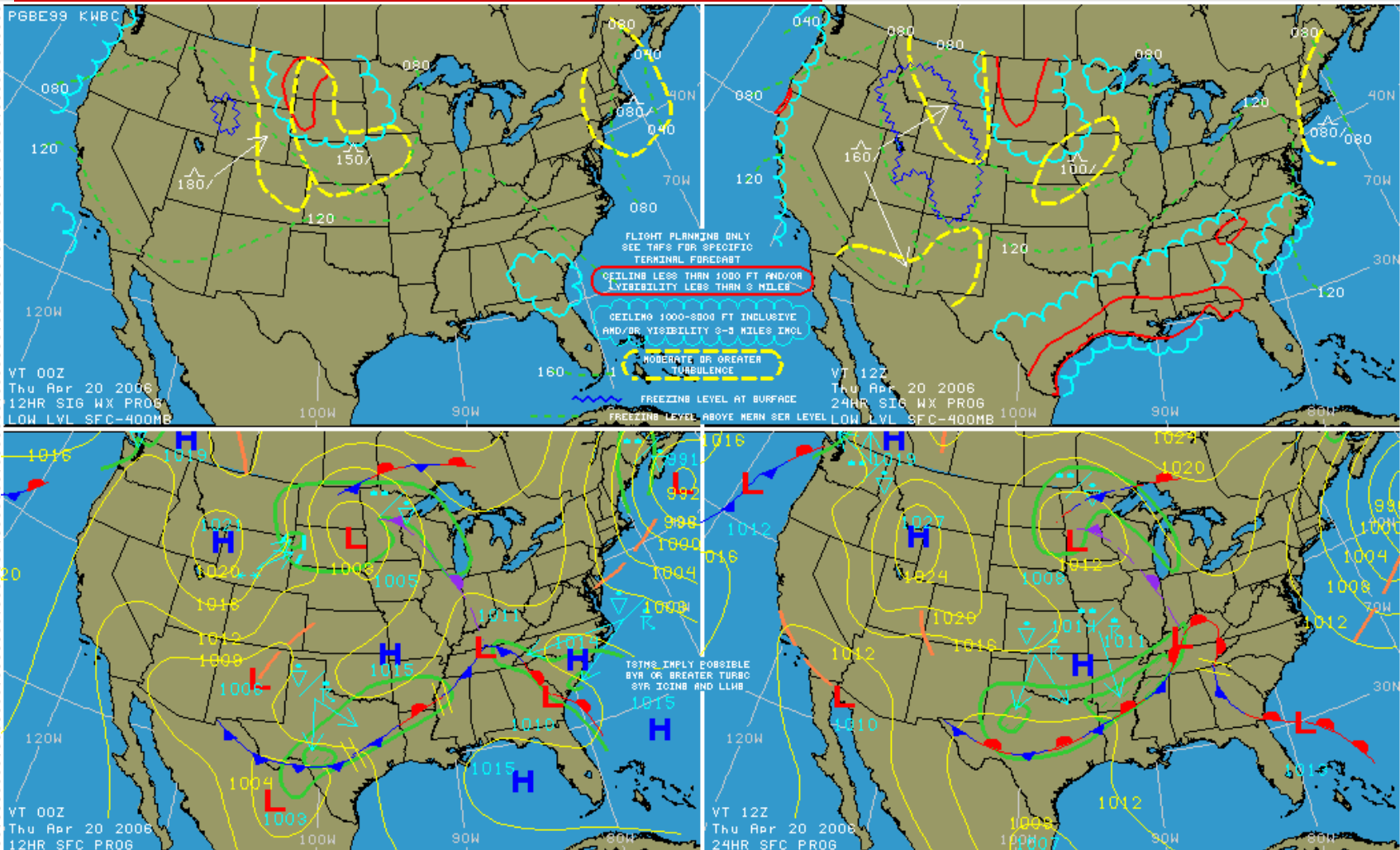
FD WBC 151745 DATA BASED ON 151200Z VALID 1600Z FOR USE 1800-0300Z. TEMPS NEG ABV 24000									
FT	3000	6000	9000	12000	18000	24000	30000	34000	39000
ALS			2420	2635-08	2535-18	2444-30	245945	246755	246862
AMA		2714	2725+00	2625-04	2531-15	2542-27	265842	256352	256762
DEN			2321-04	2532-08	2434-19	2441-31	235347	236056	236262
HLC		1707-01	2113-03	2219-07	2330-17	2435-30	244145	244854	245561
MKC	0507	2006+03	2215-01	2322-06	2338-17	2348-29	236143	237252	238160
STL	2113	2325+07	2332+02	2339-04	2356-16	2373-27	239440	730649	731960

FIGURE 17.—Winds and Temperatures Aloft Forecast.

Significant Weather Prognostic Charts

- Upper panels forecast 12 and 24 hour significant weather
 - IFR and MVFR weather
 - Nonconvective turbulence
 - Freezing levels
 - Lower panels forecast 12 and 24 hour surface weather
 - Pressure systems
 - Fronts
 - Precipitation
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Sample Prognostic Chart



AIRMET's and SIGMET's

- Airman's Meteorological Information (AIRMET)
 - Information significant to small aircraft
 - Moderate icing, turbulence, IFR conditions
 - Sustained surface winds > 30 kts
 - Extensive mountain obscuration
 - Significant Meteorological Information (SIGMET)
 - Information significant to all aircraft
 - Severe turbulence, icing
 - Dust, sand storms, volcanic eruption and ash
 - Convective SIGMET (WST)
 - Surface winds > 50 kts
 - Hail > 3/4 inch
 - Embedded/severe thunderstorms or tornadoes
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