



COMPANION

Norstar/Companion  
Alarm & Event Code Manual

August 1994



## Introduction

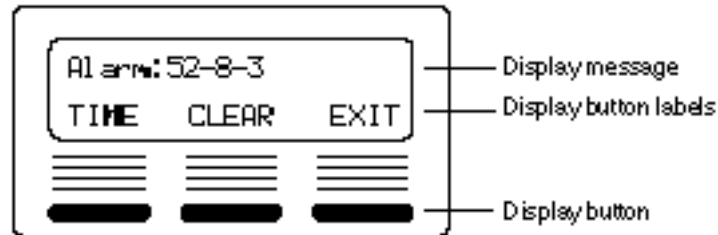
This manual lists alarm codes and event messages for all Norstar and Companion systems, except for Norstar Compact systems which must be equipped with wireless capability in order to access the codes and messages. Each alarm/event is followed by a brief explanation and the appropriate action to take. A check mark indicates whether or not an event results in a system restart.

Some events recommend a warm start to reset the system without reinitializing the system memory. To warm start the system, turn the power to the KSU off and on. If the problem persists after you have taken the appropriate actions, replace the existing Feature Cartridge with the most recent version of the Feature Cartridge.

Alarms have a higher priority than events. Attend to alarm codes before event messages.

## Alarm code displays

Alarm codes appear at the alarm telephone (if one has been identified in Administration programming) and in the System Test Log, the System Event log and the Network log during a Maintenance session. The following figure shows an alarm code as it appears on a Norstar alarm telephone display.



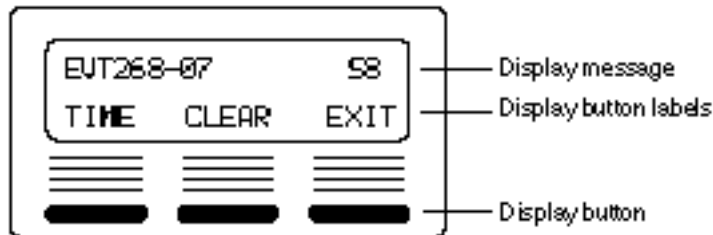
In Companion systems, some alarms are indicated by a text string rather than by an alarm code. They are handled in the same way.

### Alarm parameters

In addition to the alarm code, a series of digits may appear after hyphens to further define the appropriate port number or Trunk Cartridge number.

## Event message displays

Event messages appear as items in the System Administration Log, the System Test Log, System Event Log or the Network Log, during a Maintenance session. The 3-digit event number follows the letters EVT. The following figure shows an event message as it appears on a Norstar telephone display.



### Event parameters

In addition to the event number, a series of up to six digits may appear after a hyphen to further define the appropriate port number, directory number, filter or other event parameters. An event message can display up to three 2-digit parameters. For example, in EVTXYZ-011104:

01 = parameter 1, 11 = parameter 2, and 04 = parameter 3.

### Severity number

Each event is assigned a severity number from 1 to 9, with 9 being the most severe. An 'S' preceding this number, 'S8' for example, appears in the event message. The severity number is assigned so that if a log is full, new event messages with a higher severity replace existing messages of a lower severity. For this reason, the event messages should be checked at regular intervals.

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## Local support group

Before reporting an event to your local support group, record all parameter information displayed with the alarm code or event message. Your local support group will also need to know the software version being used.

In some cases, your local support group will request the event or restart traceback data and will supply you with the appropriate password and instructions for retrieving this information. On North American systems the restart tracebacks must include both SP and RTP tracebacks.

## List of acronyms

Acronym	Description
AC15A	A private circuit which Norstar uses in the United Kingdom to connect to a private telephone network.
BLF	Busy Lamp Field
CAP	Central Answering Position
CII	Call Identification Interface
CLID	Calling Number Identification
CPU	Central Processing Unit
DIA	Direct Inward Access
DSP	Digital Signal Processor
DTI	Digital Trunk Interface
DTMF	Dual Tone Multi Frequency
EEPROM	Electronically Erasable Programmable Read Only Memory
EVT	Event
FUMP	Functional Messaging Protocol
ID	Identification
ILG	Incoming Line Group
IVD	Integrated Voice and Data
KSU	Key Service Unit in Norstar systems, equivalent to the Controller in Companion systems.
LID	Logical Identifier
NT	Northern Telecom
NVRAM	Non-Volatile Random Access Memory
PC	Personal Computer
PCM	Pulse Code Modulation

<b>Acronym</b>	<b>Description</b>
PSTN	Public Switched Telephone Network
RAM	Random Access Memory
RTP	Real Time Processor
SP	System Processor
TCM	Time Compression Multiplexing
TN	Terminal Number

## List of alarm codes

Alarm	Explanation	Action
10	All telephones were disconnected.	Power down the system and check all telephone connections on the KSU.
11	All lines were disconnected.	Power down the system and check all core line connections on the KSU.
20	Wireless re-evaluation required.	Initiate data re-evaluation, or warm start the system.
21	Wireless re-evaluation in progress.	No action required.
22	Wireless re-evaluation completed.	
23	A configured cell failed to come on-line.	Determine which basestations belong to the failed cell. Replace the basestations and invoke a data re-evaluation, or warm start the system.
31	The download of firmware to the DTI has failed.	Check the logs for occurrences of event 338. Record the message registered in the log and contact your local support group. Power down the system and check the DTI hardware and the link to the KSU.
33	A cold start has occurred causing loss of system data.	Record the message registered in the log. Contact your local support group.
40	The long term alarm threshold has been surpassed in the DTI for the Unavailable Seconds Error.	Most likely an irregularity with the PSTN connections. Check the logs and look for events ranging from 315-336. If this alarm occurs more than once over a two-week period, contact your local support group.



Alarm	Explanation	Action
41	The long term alarm threshold has been surpassed in the DTI for the detection of Loss of Signal.	Most likely an irregularity with the PSTN connections. Check the logs and look for events ranging from 315-336. If this alarm occurs more than once over a two-week period, contact your local support group.
42	The long term alarm threshold has been surpassed in the DTI for the detection of Loss of Frame.	
43	The long term alarm threshold has been surpassed in the DTI for the detection of Alarm Indication Signal.	
44	The long term alarm threshold has been surpassed in the DTI for the detection of Remote Alarm Indication.	
45	The long term alarm threshold has been surpassed in the DTI for the detection of Loss of Signal on time-slot 16.	
46	The long term alarm threshold has been surpassed in the DTI for the detection of Alarm Indication Signal on time-slot 16.	
47	The long term alarm threshold has been surpassed in the DTI for the detection of Remote Alarm Indication on time-slot 16.	
50	A Station Module has been disconnected.	Record the code displayed on the alarm telephone. Identify the module that caused the alarm. Power down the system. Check all connections to the Station Module. If the problem persists, replace cables.
51	A Trunk Module has been disconnected.	Record the code displayed on the alarm telephone. Identify the module that caused the alarm. Power down the system. Check all connections to the Trunk Module. If the problem persists, replace the cables.

Alarm codes 52 to 63

<b>Alarm</b>	<b>Explanation</b>	<b>Action</b>
<b>52</b>	A Trunk Cartridge has been disconnected.	Record the code displayed on the alarm telephone. Identify the module that caused the alarm. Power down the system. Check all connections to the Trunk Module. Check that the Trunk Cartridge is properly seated. If the problem persists, replace the cables.
<b>53</b>	A single radio has been removed from service due to an error. An accompanying event message will indicate an explicit reason for the radio failure.	Perform diagnostics on the basestation.
<b>54</b>	A software download to the basestations has started.	No action required. During basestation download, system performance may be sluggish, and wireless functionality will not be complete. Wait for alarm 55.
<b>55</b>	The basestation download is complete.	No action required.
<b>61</b>	The line type programmed is inappropriate or incompatible for the line that is connected to the port.	Check that the line type programmed matches the Trunk Cartridge in the slot. Change programming as required.
<b>62</b>	The line is set to auto answer but the line type does not support auto answer.	Either change the programming of the line to be manual answer, or power down the system and change the Trunk Cartridge to one that supports disconnect supervision.
<b>63</b>	There are no more DTMF receivers that can be allocated.	Wait until a DTMF receiver becomes available. If this alarm occurs frequently, add an additional Trunk Cartridge with DTMF receivers to the system.

Alarm	Explanation	Action
66	An AC15A private circuit is plugged into a telephone port that is not in the allowable range for AC15A private circuits.	Unplug the AC15A private circuit from the KSU, consult the documentation for the correct location of the AC15A ports, and then plug the AC15A private circuit into one of the allowed ports.
67	An invalid Trunk Cartridge has been connected to the indicated port.	Power down the system. Disconnect the Trunk Cartridge from the indicated port and check Trunk Cartridge compatibility for the specific country. Replace the Trunk Cartridge with appropriate the Trunk Cartridge type as required.
68	A device has been connected to a port which is not available for the device type.	Power down the system and disconnect the device from the port identified. Reconnect it to a valid port.
69	Software registrar error.	Contact your local support group and get event tracebacks. Replace the Feature Cartridge with the most recent version.
71	A log event has activated the emergency transfer relay.	No action required. The alarm was generated by a power failure.
80	An alarm generated by external PC applications.	Refer to PC applications for appropriate action.
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Alarm codes 87 to 99

<b>Alarm</b>	<b>Explanation</b>	<b>Action</b>
87	An alarm generated by external PC applications.	Refer to PC applications for appropriate action.
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## List of event messages

Event	Restart	Explanation	Action
1	✓	System error.	Replace the KSU if using a North American system or replace the Feature Cartridge with the most recent version for other products.
2		The system defaults to LoopStart because it is not able to recognize the mode assigned to the Trunk Cartridge in programming.	Try programming again. If unsuccessful, contact your local support group to get the event tracebacks.
3		System error.	Replace the KSU if using a North American system or replace the Feature Cartridge with the most recent version for other products.
4		The system processor is too busy.	No action required. If the event recurs, do a warm start. Record the programming and contact your local support group to get event tracebacks.
5		Minor system error indicating that the system processor is too busy.	Contact your local support group and get event tracebacks.
6		System error.	
10		System error with the Digital Signal Processor.	Contact your local support group and get event tracebacks. Warm start the system. If the event recurs, replace the Feature Cartridge with the most recent version.

Event messages 11 to 20

Event	Restart	Explanation	Action
11		System error with the Digital Signal Processor.	Replace the KSU if using a North American system or replace the Feature Cartridge with the most recent version for other products. Contact your local support group and get event tracebacks.
12	✓	Insufficient memory for the operation of the Digital Signal Processor.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system). Replace the KSU.
13		Overload on a Digital Signal Processor reset.	Contact your local support group and get event tracebacks.
16		Unable to read the Digital Signal Processor version.	
17		Unable to write to the Digital Signal Processor.	
18		System error with the Digital Signal Processor.	Record the event message. If the event parameter is 2, 3, 4, 5, or 12, contact your local support group and get event tracebacks. If the parameter is 10 or 11, warm start the system.
19		Error in the Digital Signal Processor messaging.	Record the event message. If the event parameter is 7, contact your local support group and get event tracebacks. If the parameter is 6, 8 or 9, warm start the system.
20		The Digital Signal Processor has been held up for over 40 minutes, causing a decrease in system performance.	Contact your local support group and get event tracebacks. Warm start the system.

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
21		The Digital Signal Processor firmware has detected an error.	Record the event message and contact your local support group. Warm start the system.
102	✓	Memory allocation error.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system). Replace the Feature Cartridge with the most recent version.
103	✓	Invalid address for NVRAM memory allocation/de-allocation.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system). Replace the Feature Cartridge with the most recent version.
104	✓	No more RAM available.	
105	✓	No more NVRAM available.	
106	✓	No more timers available.	
107		Timer duplication error.	Contact your local support group and get event tracebacks.
108	✓	Timer error.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system). Replace the Feature Cartridge with the most recent version.
109	✓		
110	✓	Invalid number of timers.	
111	✓	The system is trying to do an operation on an invalid timer ID.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
112	✓	Duplication of timers.	
113		Invalid timer.	Contact your local support group and get event tracebacks.

Event messages 114 to 130

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
114	✓	The Real Time Processor is resetting.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
115	✓	The system software is using an invalid index.	
116	✓	The system is using an invalid port index.	
117		System error with the RTP.	Contact your local support group and get event tracebacks.
118	✓	Messaging error.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
119	✓	Queuing error.	
120	✓	An internal message is too long.	
121		The queuing subsystem not yet initialized.	
122		Queuing error.	Contact your local support group and get event tracebacks. Warm start the system.
123		The system is trying to reinitialize the queuing subsystem.	
124	✓	The system is trying to use an invalid line number.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
125	✓	The system is trying to use an invalid directory number.	
126		The system is trying to use an invalid tone on a core line.	
127		Stimulus messaging error.	Contact your local support group and get event tracebacks.
128		Internal FUMP error.	
129			
130	✓	FUMP interpreter missing.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).



<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
131		Too many FUMP interpreters.	Contact your local support group and get event tracebacks. Warm start the system.
132		Invalid FUMP monitoring.	
133	✓	Stimulus handling error.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
134	✓	FUMP handling error.	
135		The system is trying to use an invalid telephone ID.	Contact your local support group and get event tracebacks. Warm start the system.
136		The system is trying to use invalid indexing on a message.	Contact your local support group and get event tracebacks. Warm start the system.
137	✓	The system is trying to start a timer that is still running, or trying to cancel a timer that is not running.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
138		The internal timer being set.	Contact your local support group and get event tracebacks. Warm start the system.
139		The time-out procedure has been running for too long and barely avoided a watchdog time-out.	Contact your local support group and get event tracebacks.
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Event messages 144 to 151

Event	Restart	Explanation	Action
144		The system does not recognize hardware configuration. Some peripherals may be out of service.	Record programming. Contact your local support group and get event tracebacks. Power down the KSU. Check all hardware connections. Check that the Expansion Cartridge is properly seated. If the problem persists, replace the Feature Cartridge with the most recent version.
145		Trying to send a message that has length 0.	Contact your local support group and get event tracebacks.
147		Incorrect line message destination. Some of the off-core lines may not function properly.	Contact your local support group and get event tracebacks. Power down the KSU. Check all Trunk Module connections. Check that the Expansion Cartridge and Trunk Cartridges are properly seated. If the problem persists, replace the Feature Cartridge with the most recent version.
148		The system's application layer is trying to define a bad value for the maximum D-channel message size.	Contact your local support group and get event tracebacks. Replace the Feature Cartridge with the most recent version.
149		The system is trying to set invalid DTMF dialing parameters.	Contact your local support group and get event tracebacks.
150		The system is trying to dial either only invalid DTMF digit(s) or no digits at all.	
151		A software routine has received an invalid parameter.	

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>152</b>		The system is calling for a software routine that is not supported.	Contact your local support group and get event tracebacks.
<b>160</b>		The system is trying to program an invalid PCM mode in the A08 chip. This occurs only on North American products equipped with an RTP or on North American Compact systems.	
<b>161</b>		The system is trying to set illegal parameters for a connection.	
<b>162</b>		The system is trying to perform a conference function but the parameters relating to the conference address are out of range.	
<b>163</b>		When attempting to configure some operating parameters on the line hardware, a number of parameters were either not recognized or badly formatted.	
<b>165</b>		Proceed to Send and Number Received signaling protocol not supported by on-core lines.	Contact your local support group and get event tracebacks.
<b>166</b>		Attempted to read or clear the pulse meter for a core line.	
<b>170</b>		The dial tone detector has an invalid condition. The parameter contains the index of the PSTN.	Contact your local support group and get event tracebacks. Warm start the system.
<b>171</b>		The dial tone detector has failed a self-test and activated the emergency transfer relay.	Contact your local support group. Warm start the system.
<b>172</b>		Message routing error.	Contact your local support group and get event tracebacks.
<b>173</b>			

Event messages 176 to 189

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>176</b>		D64 channel message error.	Warm start the system.
<b>177</b>		D64 channel message interrupt error.	
<b>178</b>		D64 channel message handler error.	
<b>179</b>		Attempting to associate a D64 channel with an invalid index range.	
<b>180</b>		The tones download failed during system initialization.	Contact your local support group and get event tracebacks. Warm start the system.
<b>181</b>		The DSP download failed during system initialization.	
<b>182</b>		The system is trying to set a new timer but there is none available.	Warm start the system.
<b>183</b>		The N15 chip is faulty. The system will behave in an unpredictable manner. The DSP Interrupt communication interface may be too busy.	Replace the KSU.
<b>184</b>		Invalid message length over the D64 channel.	Record the event message. Contact your local support group and get event tracebacks. Warm start the system.
<b>185</b>		Software registrar error.	Contact your local support group and get event tracebacks. Replace the Feature Cartridge with the most recent version.
<b>187</b>		The Expansion Cartridge is plugged into the wrong slot on the KSU.	Insert the Expansion Cartridge in the appropriate slot.
<b>188</b>	✓	Invalid time slot or no response from the core controller hardware.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
<b>189</b>	✓	Error in the Digital Signal Processor.	

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>190</b>		Corrupt data between the core controller and core controller interface software.	Record the event message and contact your local support group.
<b>191</b>		Download for the Digital Signal Processor failed at system initialization.	Contact your local support group and get tracebacks (including RTP tracebacks in a North American system). Try restarting the system.
<b>192</b>		Too many IVD read requests are outstanding.	
<b>200</b>		The command type of the FUMP message is invalid at the time of the event.	Warm start the system.
<b>201</b>		Invalid message type.	Contact your local support group and get event tracebacks.
<b>202</b>		Invalid parameter type.	
<b>203</b>		The system is dealing with an event message that is not found in the event table.	
<b>204</b>		The system is dealing with an alarm code that is not found in the alarm table.	Contact your local support group and get event tracebacks.
<b>205</b>		The event has too many parameters associated with it.	
<b>206</b>		At the time of the event, invalid input was received during a Maintenance session.	
<b>207</b>		Invalid maintenance timer identifier.	
<b>208</b>		The input into the channel state machine is invalid for the current state.	
<b>210</b>		A maintenance test has been started.	
<b>211</b>		The system has finished the test and presents the results.	No action required.
<b>220</b>		The admin log file has been cleared.	

Event messages 221 to 234

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>221</b>		The test log file has been cleared.	No action required.
<b>222</b>		Entering <b>**DEBUG</b> .	
<b>223</b>	✓	The system is restarting after the restore was successful.	
<b>224</b>	✓	Could not re-enable all devices after an NVRAM restore took place.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
<b>225</b>		An NVRAM backup or restore was successful.	No action required.
<b>226</b>		AN NVRAM backup failed.	Contact your local support group and get event tracebacks.
<b>227</b>		Starting an NVRAM restore.	No action required.
<b>228</b>		Starting an NVRAM backup.	
<b>229</b>	✓	An NVRAM restore failed.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
<b>230</b>		No function has been enabled for the display button being pressed, or no label is displayed for the display button being pressed.	Contact your local support group and get event tracebacks.
<b>231</b>		User interface mechanism error during a Maintenance session.	Contact your local support group and get event tracebacks. Exit from Maintenance session. Power down the KSU. Replace the Feature Cartridge with the most recent version.
<b>232</b>			
<b>233</b>			
<b>234</b>			

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>235</b>		Invalid software request.	Contact your local support group and get event tracebacks.
<b>245</b>		System waiting to receive more data.	
<b>246</b>		System could not register a background process.	
<b>247</b>		An invalid channel related event was received.	
<b>248</b>		Invalid maintenance index.	
<b>250</b>		A Station Module has been disconnected.	Record the event message. Power down the system. Check the Station Module connections. Check that the Expansion Cartridge is properly seated.
<b>251</b>		A Trunk Module has been disconnected.	Record the event message. Power down the system. Check the Trunk Module connections. Check that the Expansion Cartridge is properly seated.
<b>252</b>		A Trunk Cartridge has been disconnected.	Record the event message. Power down the system. Check the Trunk Module connections. Check that the Expansion Cartridge and Trunk Cartridge are properly seated.
<b>253</b>		All telephones were disconnected.	Check the telephone connections.
<b>254</b>		All lines were disconnected.	Check the cable connections.
<b>255</b>		The line type programmed is inappropriate or incompatible for the line which is present at that port.	Check that line type programmed matches the Trunk Cartridge in the slot. Change programming as required.

Event messages 256 to 265

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>256</b>		The line is set to auto answer but the line type does not support auto answer.	Either change the programming for the line to be manual answer, or power down the system and change the Trunk Cartridge to one that supports disconnect supervision.
<b>260</b>		The system is expecting an external line to be connected to a port but that port is empty, or the line is incorrectly programmed.	If no line is attached to the port, attach a line. If a line is attached, determine if the line is operational. Check the programming for that line.
<b>261</b>		A line which has previously failed a line presence test has had a line attached and has now passed the line presence test.	No action required.
<b>262</b>		A line was seized but no dial tone is present.	Check the physical line to determine if it is operating correctly.
<b>263</b>		The handshake which occurs between the KSU line and the network when a line is released was not properly completed. The problem could be related to equipment used in PSTN.	Check the line interface with the network to determine if it is operating correctly.
<b>264</b>		The KSU line detected the completion of the release handshake after it had previously failed.	No action required.
<b>265</b>		Network did not acknowledge the KSU request to seize the line.	Check the line interface with the network to determine if it is operating correctly.



Event	Restart	Explanation	Action
266		An AC15A private circuit is plugged into a telephone port that is not in the allowable range for AC15A private circuits.	Unplug the AC15A private circuit from the KSU. Consult the documentation for the correct location of the AC15A ports, and then plug the AC15A private circuit into one of the allowable ports.
268		A system audit has detected memory corruption in the storage of the dialing filters for external dialing restrictions and exceptions.	All dialing filter definitions have been defaulted as a result of this error. Reprogram all dialing filters.
269		A system audit has detected memory corruption in the storage of dialing filters applied to specific line appearances on a telephone.	Any dialing filters applied to a dedicated line appearance on a specific telephone have been defaulted as a result of this error. Reprogram all line/set dialing filters.
270		The system is dealing with a multi-byte message that it does not understand, while trying to initialize the telephone. May be caused by a noisy line.	If the event occurs many times, unplug the telephone, wait for 3 minutes, then replug the telephone. Check the external lines.
271		Incomplete telephone firmware.	Initiate a Maintenance session to check the telephone firmware version. Contact your local support group. If required, upgrade the telephones that generated the event.
272		The handshake which occurs on a line with supervision was not properly completed.	No action required.
274		An extra CII box was plugged in or the CII plugged in is incompatible with the KSU.	Check if two CIIs are installed. If not, change the CII so that it is compatible with the current KSU.

Event messages 280 to 296

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>280</b>		The alarm telephone has received a code it cannot handle in its current state.	Contact your local support group and get event tracebacks. Warm start the system.
<b>281</b>		Software error with alarm telephone.	
<b>283</b>		Software error causing a bad instance on alarm telephone.	
<b>285</b>	✓	An address error occurred.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
<b>286</b>	✓	A bus error occurred.	
<b>287</b>	✓	The op code is not supported by the CPU.	
<b>288</b>	✓	The code is trying to divide by 0.	
<b>289</b>	✓	The code is trying to access a structure with an invalid index.	
<b>290</b>	✓	The CPU is storing too much information for the stack size.	
<b>291</b>	✓	The CPU is trying to execute a privileged instruction in user mode.	
<b>292</b>	✓	Data register has overflowed and caused an exception error.	
<b>293</b>	✓	The CPU is trying to pass control to an uninitialized interrupt vector.	
<b>294</b>	✓	The system is passing control to the level 1 interrupt auto vector.	
<b>295</b>	✓	Watchdog time-out expired.	
<b>296</b>	✓	Problems with software regions.	

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>297</b>	✓	Problems in multi-tasking.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
<b>298</b>	✓	Invalid vector.	
<b>299</b>		The KSU is being powered up.	Contact your local support group and get event tracebacks.
<b>301</b>		The basestation cannot successfully write the data image it is receiving in the download.	Return the basestation to NT for inspection.
<b>302</b>		The basestation's flash EEPROM is bad and it cannot be written to.	Replace the basestation.
<b>303</b>		The basestation cannot be synchronized with the other basestations in the system.	Record the event message and contact your local support group. Replace the basestation.
<b>304</b>		The basestation has lost synchronization with the other basestations in the system due to loss of TCM synchronization.	
<b>305</b>		A B2 Channel radio cannot be synchronized because its partner B1 radio was disabled in a Maintenance session.	Re-enable the B1 radio first, then the B2 radio. If the B1 radio cannot be re-enabled, then the basestation should be replaced.
<b>307</b>		A hardware fault has occurred in the basestation.	Record the event message and contact your local support group. Replace the basestation.
<b>308</b>		A basestation with a radio protocol not supported by the KSU has been attached to the system.	
<b>309</b>		The DTI maintenance software has received an invalid event.	Record the event message and contact your local support group. No further action required.

Event messages 310 to 319

Event	Restart	Explanation	Action
310		Bad stimulus message received by DTI from KSU.	Record the event message and contact your local support group. Check the DTI connections. If the problem persists call the T1 service provider.
311		System error associated with the DTI software emulator.	Record the event message and contact your local support group. No further action required.
312		The clock server received an unexpected event or invalid FUMP message received by the clock.	
313		The clock server did not receive the clock alarm from the N15 after a time-out period.	
314	✓	Failed to register logical address of DTI emulator.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
315		Long term alarm threshold has been surpassed in the DTI cartridge for the Unavailable Seconds Error.	Most likely an irregularity with the PSTN connections. If this event occurs more than once over a two-week period, contact your local support group.
316		Long term alarm threshold has been surpassed in the DTI cartridge for the detection of Loss of Signal.	
317		Long term alarm threshold has been surpassed in the DTI cartridge for the detection of Loss of Frame.	
318		Long term alarm threshold has been surpassed in the DTI cartridge for the detection of Alarm Indication Signal.	
319		Long term alarm threshold has been surpassed in the DTI cartridge for the detection of Remote Alarm Indication.	

Event	Restart	Explanation	Action
320		Long term alarm threshold has been surpassed in the DTI cartridge for the detection of Loss of Signal on time-slot 16.	Most likely an irregularity with the PSTN connections. If this event occurs more than once over a two-week period, contact your local support group.
321		Long term alarm threshold has been surpassed in the DTI cartridge for the detection of Alarm Indication Signal on time-slot 16.	
322		Long term alarm threshold has been surpassed in the DTI cartridge for the detection of Remote Alarm Indication on time-slot 16.	
323		Short term alarm threshold has been surpassed in the DTI cartridge for the detection of a Degraded Minute.	
324		Short term alarm threshold has been surpassed in the DTI cartridge for the detection of a Severely Errored Second.	
325		Short term alarm threshold has been surpassed in the DTI cartridge for the detection of an Errored Second.	
326		Short term alarm threshold has been surpassed in the DTI cartridge for the detection of Controlled Slip Underflow.	
327		Short term alarm threshold has been surpassed in the DTI cartridge for the detection of Controlled Slip Overflow.	
328		Short term alarm threshold has been surpassed in the DTI cartridge for the detection of a Line Code Violation.	

Event messages 329 to 337

Event	Restart	Explanation	Action
329		Short term alarm threshold has been surpassed in the DTI cartridge for the detection of Loss of Signal.	Most likely an irregularity with the PSTN connections. If this event occurs more than once over a two-week period, contact your local support group.
330		Short term alarm threshold has been surpassed in the DTI cartridge for the detection of Loss of Frame.	
331		Short term alarm threshold has been surpassed in the DTI cartridge for the detection of Alarm Indication Signal.	
332		Short term alarm threshold has been surpassed in the DTI cartridge for the detection of Remote Alarm Indication.	
333		Short term alarm threshold has been surpassed in the DTI cartridge for the detection of Loss of Frame in time-slot 16.	
334		Short term alarm threshold has been surpassed in the DTI cartridge for the detection of Alarm Indication Signal in time-slot 16.	
335		Short term alarm threshold has been surpassed in the DTI cartridge for the detection of Remote Alarm Indication in time-slot 16.	
336		The long-term alarm has cleared in the DTI cartridge.	
337		The Network Log has been cleared.	

Event	Restart	Explanation	Action
338		The download of software to the DTI has failed.	May simply be a transmission problem that will correct itself. The download will automatically be restarted if the maximum number of attempts has not been exceeded. If the problem persists, record the event message and contact your local support group.
339		The maximum number of attempts to successfully download firmware to the DTI has been exceeded.	Check the logs for occurrences of event 338. Record the event message and contact your local support group. Power down the system and check the DTI hardware and the link to the KSU.
340		Error identified while system monitoring messages. System will continue to function normally but will terminate the message monitor session.	Record the event message and contact your local support group.
341		System error associated with line provisioning.	
342		System error associated with the maintenance terminal emulator.	
343		An invalid Trunk Cartridge has been connected to the indicated port.	Power down the system. Disconnect the Trunk Cartridge from the indicated port and check the Trunk Cartridge compatibility for the specific country. Replace the Trunk Cartridge with an appropriate Trunk Cartridge type as required.
344	✓	Event logged to record a change in the clock control settings for the Digital Trunk Interface.	No action required.

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>345</b>		Error in a request to the maintenance server.	Contact your local support group and get tracebacks (including RTP tracebacks in a North American system).
<b>346</b>		Error in a request between the maintenance server and the Maintenance Terminal Emulator.	
<b>347</b>		A module enable or disable request has been rejected by the maintenance server.	Contact your local support group and get event tracebacks. Note the disable code (10), or the enable code (12).
<b>348</b>		No Services Cartridge has been installed in the KSU.	Install a Services Cartridge.
<b>349</b>		CSU feature detected an error.	Contact your local support group and get event tracebacks (including RTP tracebacks in a North American system).
<b>400</b>	✓	System is being restarted.	No action required.
<b>401</b>		Device can no longer be identified by system.	Check the status of devices and proper programming through a Maintenance session. Once the problem ports have been identified, disconnect and reconnect the devices on each port. Report the software version to your local support group and get event tracebacks.
<b>403</b>		Code is dealing with an invalid station type.	Contact your local support group and get event tracebacks.
<b>405</b>		A section of NVRAM memory block is corrupt.	
<b>406</b>		Feature 9XX was activated. Invalid parameter contained in message.	Record the event message and contact your local support group. Retry the feature code.
<b>407</b>		No more memory available to store personal speed dial numbers.	Delete some of the personal speed dial numbers to make room for new ones.



Event	Restart	Explanation	Action
409		The NVRAM memory block that contains the personal speed dialler information is corrupted.	Record the event message. Contact your local support group and get event tracebacks.
410		There is not enough memory to handle this request. This is caused by the fact that there are too many line appearances on the telephones, too many intercom buttons per telephone, too many ILG appearances on the telephones or too many Answer buttons on the telephones.	Reduce the number of line, intercom, ILG, or Answer buttons on telephones.
411		An unexpected FUMP message was received by the admin server during an Administration programming session. This may be a session involving telephone changes.	Contact your local support group and get event tracebacks.
412		The Installer password has been changed. The parameter contains the directory number that changed the password.	No action required.
413		The Administration password has been changed. The parameter contains the directory number that changed the password.	
414		Someone has unsuccessfully tried to enter the Installer password to access a programming session.	Check the logs to identify which telephone has attempted to access programming. If this happens frequently, change the password.
415		Someone has unsuccessfully tried to enter the Administration password to access a programming session.	

Event messages 416 to 425

Event	Restart	Explanation	Action
416		Someone has initiated a Configuration programming session.	No action required.
417		Someone has initiated an Administration programming session.	
418		The directory number of one or more terminals has been changed successfully by a user in Configuration programming. This can be either a DN# length change, or individual telephone changes.	
419		Someone changed the system time and/or date.	Check that the time and/or date are correct.
421		Telephone changes initiated by a user in Configuration programming have not completed successfully.	Check whether the changes made by the user have taken effect at all telephones. If not, repeat the remaining changes in Configuration programming.
422		A request to change directory number length has been received during a Configuration programming session.	No action required.
423		A request to change an individual telephone has been received in a Configuration programming session.	
424		DTMF pool manager software error.	Record the event message. Contact your local support group and get event tracebacks.
425		Trying to add an directory number or a code that is already in the table.	Change the directory number or other codes to ensure full compatibility between numbering schemes in the system.

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
426	✓	Trying to register an invalid block or service identifier.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
427	✓	The NVRAM memory manager has received a request from the software to register a data block that has already been registered.	
428	✓	The NVRAM manager received a request from a KSU application procedure to access a data block or service that has already been registered.	
429	✓	Insufficient NVRAM memory available or cannot reallocate memory size using a negative value.	
432	✓	The NVRAM manager received a request to perform a function that is not allowed. Usually occurs after system initialization is complete.	
433		User interface subsystem error.	Contact your local support group and get event tracebacks.
434		The register password has been changed.	No action required.
435		A second CII was plugged into the system. The KSU only supports one CII.	Unplug the second CII.
436		No more communication between CII and KSU. The CII may have been unplugged.	Check the CII connections.
437	✓	Data abstraction interface error.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>438</b>		The message monitor password has been properly entered.	This is a security information message to ensure that the message monitor session is an authorized one. If not, change the Installer password to prevent recurrence.
<b>440</b>		An invalid password has been entered for a display button.	No action required. This is a security information message only.
<b>441</b>		An interdigit timeout occurred at the start of or during the collection of address digits.	Check that there is compatible trunk programming, or ANI/DNIS protocol between the system and the far-end.
<b>442</b>		An interdigit timeout occurred while waiting for ANI or DNIS digits.	
<b>443</b>		Display button provisioning error.	Contact your local support group and report the event message.
<b>600</b>	✓	FUMP monitoring error.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
<b>601</b>	✓	Cannot register a TN.	
<b>602</b>	✓	Timer error.	
<b>603</b>		Emulator error in dealing with a maintenance response message.	No action required.
<b>604</b>		Insufficient RAM to allocate additional pools.	No action required. Report the event message to your local support group.
<b>606</b>		Emulator software error in dealing with node allocation/de-allocation.	

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>607</b>		System initialization error.	Check that all types of attached TCM peripherals (telephone, Trunk Cartridge, etc.) initialize and function. Record the type of any non-functioning device and the byte parameter indicating device type. Contact your local support group.
<b>608</b>		System initialization error.	Check that all types of attached TCM peripherals (telephone, Trunk Cartridge, etc.) initialize and function. Refer to Feature Cartridge documentation to check that all attached device types are supported. Remove any unsupported device types, or obtain a Feature Cartridge that supports the peripheral.
<b>609</b>		No software emulator is running.	Contact your local support group and get event tracebacks.
<b>610</b>		Internal software message error.	
<b>611</b>		The transmit queue is full. Cannot send a message.	
<b>612</b>		Dealing with a message that has an invalid protocol.	
<b>613</b>		Internal software error in dealing with a message definition.	
<b>614</b>	✓	Activation table is full.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).

Event messages 615 to 626

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>615</b>		Too many internal nested activations occurred.	Contact your local support group and get event tracebacks.
<b>616</b>		The software chain pool is full.	
<b>617</b>		Cannot establish a wireless session.	
<b>618</b>		Call processing will not function.	Warm start the system. If the problem persists, replace the Feature Cartridge with the most recent version.
<b>619</b>		Invalid stimulus message.	Check that the peripheral firmware versions are compatible with the KSU software. Look for other evidence of D-channel message errors. Remove any incompatible device types, and correct any TCM wiring problems that cause D-channel errors. Contact your local support group.
<b>620</b>		A software error with the digit collector.	No action required.
<b>622</b>			
<b>623</b>		Internal software activation error.	Contact your local support group and get event tracebacks.
<b>624</b>		Display driver error within the software configuration load.	Check that the system load is appropriate and up to date. Check that no inappropriate telephones have been plugged into the system. Contact your local support group and get event tracebacks.
<b>625</b>		System has run out of RAM to store telephone data during telephone initialization.	Check that the software load is appropriate. Contact your local support group and get event tracebacks.
<b>626</b>			

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>627</b>		System has run out of RAM to store telephone data during telephone initialization. As the system becomes less busy, functionality will return.	Contact your local support group and get event tracebacks.
<b>628</b>		Insufficient RAM for display purposes. As the system becomes less busy, functionality will return.	
<b>629</b>		Timer error.	
<b>630</b>	✓	Timer error.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
<b>631</b>		Internal software error.	Contact your local support group and get event tracebacks.
<b>633</b>			
<b>634</b>		Memory is low. May cause some operations to fail. As the system becomes less busy, functionality will return.	
<b>635</b>			
<b>636</b>		Memory is low. May cause some operations to fail. As the system becomes less busy, functionality will return.	Check that the software load is appropriate. Contact your local support group and get event tracebacks.
<b>638</b>		Error in the software that controls add-on devices (BLF, CAP module, etc.)	Contact your local support group and get event tracebacks.
<b>639</b>		Fault in the CAP module.	Contact your local support group and get event tracebacks. Reinitialize the CAP module. If necessary, reinitialize the KSU. Check the compatibility of the CAP module and the KSU software. If the problem persists, replace the CAP module.

Event messages 640 to 650

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>640</b>		Internal software error while initializing CAP module.	Contact your local support group and get event tracebacks.
<b>641</b>		Internal software error.	
<b>642</b>		Internal software message error.	
<b>643</b>		Internal software error.	
<b>644</b>		There is no memory left to handle a conference.	Contact your local support group and get event tracebacks. If this occurs frequently, more memory may be made available by removing some physical line appearances, intercom, Answer, and ILG buttons.
<b>645</b>		There is no memory left to handle a transfer.	
<b>646</b>		An unknown functional message type has been received by some emulator in the system.	Disconnect any unrecognized applications running on all functional devices connected to the system. Contact your local support group and get event tracebacks.
<b>647</b>		Error initializing logical lines. Some logical lines will not work.	Contact your local support group and get event tracebacks. Warm start the system.
<b>648</b>		Internal software error.	Contact your local support group and get event tracebacks. Replace the Feature Cartridge with the most recent version.
<b>649</b>		The device is not supported by the software.	Contact your local support group and get event tracebacks and check device compatibility.
<b>650</b>		An unrecognized device is attempting to register a loss plan.	Contact your local support group and get event tracebacks. Identify and remove the incompatible device.



<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>651</b>		Loss plan error.	Contact your local support group and get event tracebacks.
<b>652</b>		Device initialization failed.	
<b>653</b>		Error creating a stimulus message.	
<b>654</b>		Timer error.	
<b>655</b>		Internal software error.	
<b>656</b>			
<b>658</b>		Internal software conference error.	
<b>659</b>		Internal software error with Answer button feature.	
<b>660</b>			Contact your local support group. Replace the Feature Cartridge with the most recent version.
<b>661</b>		Error while initializing cell managers.	Contact your local support group and get event tracebacks.
<b>800</b>		The line is dealing with an unknown event.	
<b>806</b>		Internal software error with the line driver.	
<b>808</b>	✓	The language table contains the same language twice.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
<b>809</b>		Too many languages loaded or could not load the specific language.	Contact your local support group and get event tracebacks.
<b>810</b>	✓	The format for time and/or date cannot be entirely displayed because the display is too small. Can occur in debug or when time change occurs.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).

Event messages 811 to 827

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>811</b>		Out of RAM.	Contact your local support group and get event tracebacks.
<b>812</b>		DTMF problem.	
<b>813</b>			
<b>814</b>			
<b>815</b>		Application has made an error in connection request by passing an invalid parameter to the Address Manager interface.	
<b>816</b>		Unable to generate a tone on a particular DIA line TN.	
<b>819</b>		The line driver is sending invalid information.	
<b>820</b>		Line driver problem.	
<b>821</b>		DTMF error.	
<b>822</b>		Trying to break dialing tone after the first digit but unsuccessful because TN is incorrect or tone is not supported.	Contact your local support group. Get tracebacks and logger file if available.
<b>823</b>	✓	AC15A private circuit driver problem.	Contact your local support group and get restart tracebacks (including RTP tracebacks in a North American system).
<b>825</b>		Network monitor error.	Contact your local support group and get event tracebacks.
<b>826</b>		A glaring condition occurs on seize or while waiting for an answer from the line.	
<b>827</b>		The line has not responded to the KSU within 95 seconds of provisioning the line.	Check that the link to the line is in proper working order. If the problem persists, contact your local support group and get event tracebacks.

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>828</b>		The number of incoming digits received from the far-end exceeds the maximum number allowed.	Contact your local support group and get event tracebacks.
<b>829</b>		The number of CLID digits from the far-end exceeds the maximum number allowed.	
<b>830</b>		Internal software driver error.	Contact your local support group and get event tracebacks. Replace the Feature Cartridge with the most recent version.
<b>831</b>		Software error dealing with basestation.	
<b>832</b>		System problem with locating portables.	Contact your local support group and get event tracebacks.
<b>833</b>		The radio driver software which directly controls the basestations device has experienced an internal error.	
<b>834</b>		System problem with locating portables.	
<b>835</b>		Wireless system access error.	Enter a compatible LID.
<b>836</b>		Wireless system access error.	Contact your local support group and get event tracebacks.
<b>837</b>		Trying to register an incompatible wireless device.	
<b>840</b>		Wireless system software error in dealing with a portable telephone.	
<b>841</b>		Wireless system software error.	Contact your local support group and get event tracebacks. If this event occurs frequently, replace the Feature Cartridge with the most recent version.
<b>842</b>		Portable does not support specific display character.	

Event messages 843 to 862

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>843</b>		Internal radio driver error.	Contact your local support group and get event tracebacks.
<b>848</b>		A cell manager has been unable to register with the router.	
<b>849</b>		Synchronization error.	
<b>850</b>			
<b>851</b>		Basestation software error.	
<b>852</b>		The Data Transfer server has been told by the basestation that an error has occurred.	
<b>853</b>			
<b>854</b>		Invalid event for Data Transfer.	
<b>855</b>		Internal wireless subsystem software error.	
<b>856</b>		Internal wireless subsystem locator error.	
<b>857</b>			
<b>858</b>		Network manager internal software error.	
<b>859</b>		All possible wireless telephone numbers have been registered to portable terminals. No directory number is available to handle the registration Link setup request.	
<b>860</b>		The CII is not plugged into a valid port or something is wrong with the CII driver.	Make sure the CII is plugged into the correct port.
<b>862</b>		Defaults are incompatible with the country specified during programming. KSU will boot with some country specific information incorrect.	Restart and re-specify the country.

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>863</b>		A device has been connected to a port that is incompatible with the device type.	Disconnect the device from the port identified in the event message. Reconnect it to a valid port.
<b>864</b>		A basestation has received a corrupted stimulus message.	Use logger to identify the defective portable. Remove defective portable from the system.
<b>865</b>		The basestation does not understand the received stimulus message. Trying to use a type of portable that the system does not support.	Notify users that this type of enhanced operation is not supported on the system.
<b>867</b>		Pulse meter feature error.	Warm start the system. If the problem persists, replace the Feature Cartridge with the most recent version.
<b>868</b>			
<b>869</b>		Wireless subsystem language loading error.	Contact your local support group and get event tracebacks.
<b>870</b>		Firmware downloading to basestation.	No action required.
<b>871</b>		Basestation download is complete.	
<b>872</b>		Wireless subsystem error.	Contact your local support group and get event tracebacks.
<b>873</b>		Wireless subsystem Common Signaling Channel server software error.	
<b>877</b>		Wireless Auto-admin subsystem detected that a data re-evaluation is required.	Initiate an immediate data re-evaluation or schedule a re-evaluation for a convenient date and time.
<b>878</b>		Wireless data re-evaluation has started.	No action required. Wireless calls cannot be made while a re-evaluation is in progress.
<b>879</b>		Wireless data re-evaluation has completed.	No action required.

Event messages 880 to 889

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>880</b>		The timer is still running when an active call is nil.	Contact your local support group and get event tracebacks.
<b>881</b>		Wireless Auto-admin indicating that a configured cell failed to come on-line. Alarm 23 will display cell that failed.	Determine which basestations belong to the failed cell. Replace basestations and invoke a data re-evaluation, or warm start the system.
<b>882</b>	✓	A wireless data re-evaluation was initiated.	No action required.
<b>883</b>		An invalid dial pulse digit was detected by the T1 firmware. Indicates that the far-end is not sending dial pulse digits according to specification.	
<b>884</b>		The Wireless Auto-admin subsystem has detected an error.	Contact your local support group and get event tracebacks.
<b>885</b>		Sequencer functionality has detected an error.	
<b>886</b>		The Wireless Auto-admin Initial Intelligence component has detected an error.	
<b>887</b>		The Wireless Auto-admin CFP Sniffing component has detected an error.	
<b>888</b>		The Wireless Auto-admin Radio Manager has detected an error.	
<b>889</b>		Remote access timed out waiting for a response from the parser.	Ensure that the remote access dialing plan is administered properly.

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>890</b>		Error on an incoming DASS2 call.	Contact your local support group and get event tracebacks.
<b>891</b>		Error in the Set Index or Originating Line Identification number when trying to access OLI server NVRAM.	
<b>892</b>		Error in call charge processing.	
<b>893</b>		The M1 line driver received an unexpected timeout or entered into a wrong dial mode.	
<b>894</b>		The digital link went down and the DTI was unable to report it to the system.	Contact your local support group and get event tracebacks. Check that the DASS2 link is operational and the DTI is still functioning. If necessary, deprovision and then reprovision the line in a Maintenance session.
<b>895</b>		The Wireless Auto-admin Initial Intelligence component has detected radio RSSI discrepancies.	Contact your local support group and get event tracebacks.
<b>896</b>		The maximum number of Call Forward Busy retry attempts has been exceeded.	Change any Call Forward Busy settings that may result in a loop.
<b>900</b>		The message received is not of the expected length.	Contact your local support group and get event tracebacks.
<b>901</b>		A cold start was initiated.	Contact your local support group and give details of events leading up to the cold start and the data recorded from the logs. Reprogram system, all programming has been defaulted.
<b>940</b>		A terminal is reporting an error to the maintenance software.	Contact your local support group and get event tracebacks.

Event messages 941 to 984

<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
<b>941</b>		A terminal's internal message received buffer is saturated.	Reset the terminal by unplugging and replugging it.
<b>942</b>			
<b>943</b>		Terminal related error.	
<b>950</b>		An event generated by external PC applications.	Refer to PC applications for appropriate action.
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<b>Event</b>	<b>Restart</b>	<b>Explanation</b>	<b>Action</b>
986		An event generated by external PC applications.	Refer to PC applications for appropriate action.
988			





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