

NOTAM Data Model

**Washington D.C.
October 12, 2007
Digital NOTAM Working Group Meeting**



- Objective
- Categorization of Airport D NOTAMs
- Categorization of ICAO NOTAMs by Q Code
- Content issues with examples
- The Data Model for Runway Closure NOTAMs

Model Change Process

- **Iterative Modelling**
 - Changes to categorization
 - Number of categories
 - Accuracy of categories
 - Increased coverage
 - Re-categorizations
 - NOTAM Examples
 - Subject Matter Expertise

Objective

- Enable entry, storage, and retrieval of NOTAMs using AIXM
- Steps
 - Extract Data Model from current NOTAMs
 - Design UML classes for the NOTAM Data Model
 - Propose changes to AIXM 5 RC2 required to incorporate the Data Model into AIXM 5 RC2
 - Setup review procedures to edit and expand the Data Model
 - Setup structured change procedures to continue to incorporate the evolving NOTAM Data Model into future iterations of AIXM

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Data Sample by Major Category

- NOTAM D and FDC NOTAMs in US format (1/3), all others in ICAO format (2/3)
- NOTAM D category minus special types is 20.9 percent of all NOTAMs in USNS
- US NOTAMs comprise 46.3 percent of all NOTAMs in USNS

NOTAM Type	Count	Percent
International	19,542	44.0%
International (US)	2,235	5.0%
Military	4,316	9.7%
Military (US)	2,731	6.1%
Military US DESC	4	0.0%
Military US GPS	120	0.3%
Military US USA	18	0.0%
FDC NOTAM	5,282	11.9%
FDC NOTAM Intl (US)	72	0.2%
FDC TFR POINTER	40	0.1%
NOTAM D	9,279	20.9%
NOTAM D CANADA	323	0.7%
NOTAM D CARF	43	0.1%
NOTAM D GPS	16	0.0%
NOTAM D LORAN	3	0.0%
NOTAM D POINTER	23	0.1%
NOTAM D UAR	174	0.4%
NOTAM D USD	223	0.5%
TEST	4	0.0%
ALL	44,448	100.0%
FDC (ALL)	5,394	12.1%
NOTAM D (ALL)	10,084	22.7%
Military (US) (ALL)	2,873	6.5%
US (ALL)	20,586	46.3%

Example: International Civilian (ICAO format) (44.0 % of sample)

- **W3134/07 NOTAMN**
 - Q)LIMM/QWPLW/IV/M/W/000/040/4416N01056E002
 - A) LIMM
 - B) 0708151000
 - C) 0708151200
 - E) CIV PJE WI AREA 2NM RADIUS OF
441612N105639E /MONTESE-SW BOLOGNA/ACT
SUBJ APPROVAL BY AND CONT RDO CONTACT
WITH BOLOGNA APPF) GNDG) 4000FT AMSL
- **QWPLW means:**
 - Q Line
 - WP: Parachute jumping exercise (PJE)
 - LW: Will take place

ICAO format is composed of lines
(Q,A,B,C, and E)

Line Q categorizes the NOTAM
automatically

Line B has the begin time

Line C has the end time

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Example: US NOTAM D (20.9 % of sample)

- !ORD 07/027 ORD 9R/27L NOW 10/28 WEF
0707050901
- As found in the USNS database:
 - D,ORD,07/027,1,041439,KHNLYFYX, FS21ORD
02760107,"!ORD 07/027 ORD 9R/27L NOW 10/28 WEF
0707050901
 - D NOTAM number 07/027 from Chicago O'Hare
announcing a change in name for one of the runways:
 - 9R/27L is not 10/28
 - With effect from (WEF) July 5, 2007, 9 AM local time
 - Generated from Flight Station System 21 (FS21)
 - The entire NOTAM is composed of free text containing
pre-defined contractions.

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MODEL EXCHANGE INFORMATION AERONAUTICAL

Q Codes Summary

Rank	ICAO CODE	International	International (US)	Military	Military (US)	Grand Total	Percent of all	Rank	ICAO CODE	International	International (US)	Military	Military (US)	Grand Total	Percent of all
1	QXXXX	1838	354	431	1118	3879	14.5%	23	QPDXX	80	95	10	3	188	0.7%
2	QOBCE	868		494	14	1376	5.2%	24	QARCH	97		1	73	171	0.6%
3	QOLAS	150		564	15	729	2.7%	25	QFALC	98	3	33	37	171	0.6%
4	QMRLC	389	252	42	40	723	2.7%	26	QICAS	75	50	26	9	160	0.6%
5	QPICH	150	341	62	156	721	2.7%	27	QWGLW	75		85		160	0.6%
6	QFAXX	614		78	13	705	2.6%	28	QARXX	149				149	0.6%
7	QKXXX	598		87		685	2.6%	29	QMPLC	143		3		146	0.5%
8	QWPLW	426		227	14	667	2.5%	30	QCAAS	123		7	14	144	0.5%
9	QMXLC	467		65	47	579	2.2%	31	QOBXX	105		30	4	139	0.5%
10	QWMLW	381		108	1	490	1.8%	32	QMPXX	132				132	0.5%
11	QRDCA	416		12		428	1.6%	33	QFUAU	103		22	1	127	0.5%
12	QMRXX	355	21	42	8	426	1.6%	34	QNVAS	115	4		2	121	0.5%
13	QRRCA	275	11	54	46	386	1.4%	35	QWALW	73		48		121	0.5%
14	QFAAH	278		44	38	362	1.4%	36	QLAAS	58	41	14	7	120	0.4%
15	QOEXX	305				305	1.1%	37	QPDGV			5	113	118	0.4%
16	QMXXX	235		11	3	249	0.9%	38	QNMAS	104	5	1		110	0.4%
17	QFALT	113		122	1	236	0.9%	39	QNMXX	92		1	14	107	0.4%
18	QPIXX	180		29	16	225	0.8%	40	QMRHW	98		6	2	106	0.4%
19	QNBAS	205		7	1	213	0.8%	41	QIGAS	58	37	8	2	105	0.4%
20	QWELW	126	3	80		209	0.8%	42	QLPAS	80		16	8	104	0.4%
21	QPIGV	1		9	196	207	0.8%	43	QPDCH	79	1	13	11	104	0.4%
22	QRTCA	173		30		203	0.8%	44	QCAXX	85		15		100	0.4%

- 26,683 ICAO NOTAMs

- 14.5 % QXXXX

- 18.9 % Q23XX

- Top 44 are 63.4% of sample

- Excluding QXXXX, Top 43 are 58.9 % of sample

NOTAM Data Model Categories

- Obstacles
- Runway
- Airport Facilities
- Airport Navigation Services
- Taxiway
- NAVAIDs
- Procedures
- Airspace
- Routing

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D NOTAM Examples

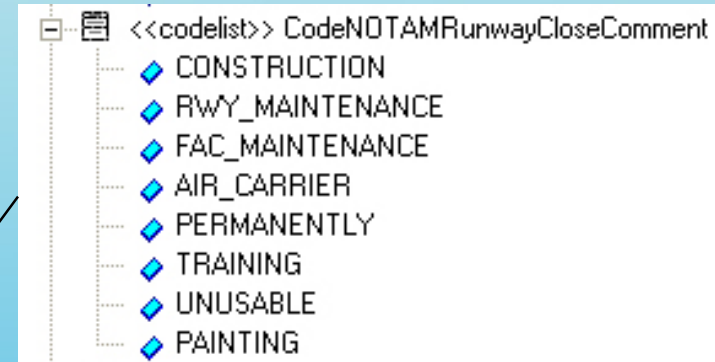
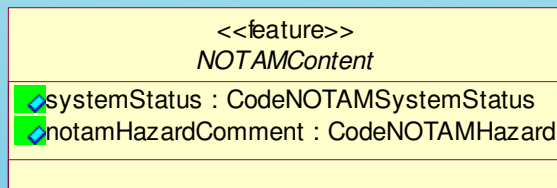
- !BDL 07/050 BDL 6/24 CLSD EXC 1HR PPR 860-627-3001 WEF0708020500-0708020900
- !ENA 06/021 ENA 1L/19R CLSD TRNG OPS OVR 12500
- !YVR 07/098 YVR CYVR RWY 12/30 CLSD DUE MAINT 0400/1300 DLYWEF 0707300400-0708041300
- !HNL 07/094 HNL 8L/26R CLSD EXC8L LAST 7400 AVBL TKOF WEF0707311200-0707311600
- !BNA 10/091 JWN 2/20 CLSD WINGSPAN OVR 60 EXC 4 HR PPR 615-350-5000
- !LYH 05/004 LYH 17/35 CLSD 30000/OVR TIL 0708311100
- !BJJ 07/013 BJJ 10 FIRST 1200 CLSD WEF 0707301100-0708301100

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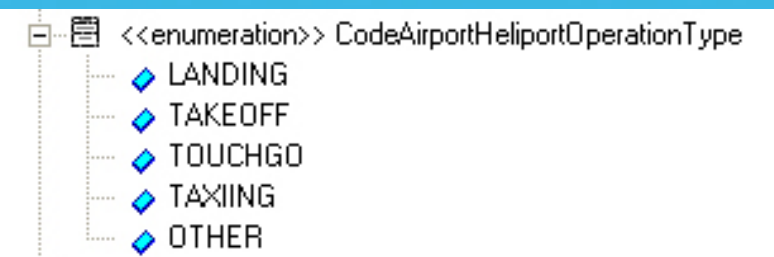
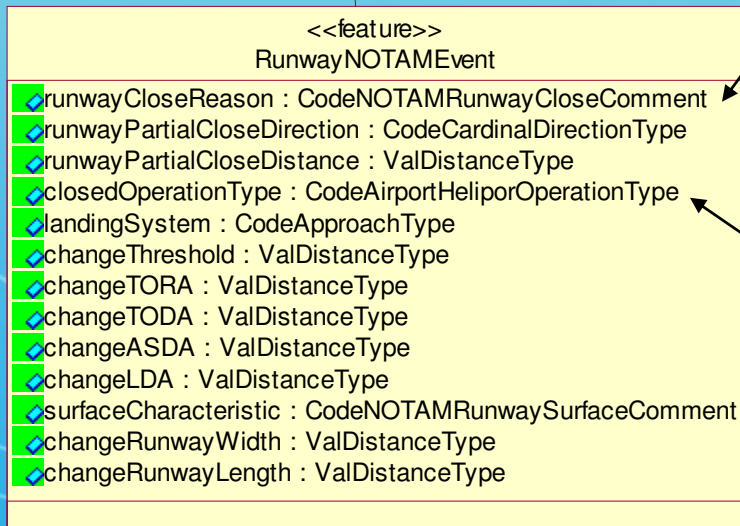
MODEL EXCHANGE INFORMATION

Closure (complete)



D,EKN,09/033,1,121255,KEKNYFYA,,"!EKN
09/033 4G7 4 CLSD LDG NGT

- A reason may be stated for the closure
 - Landing operations accessed from closedOperationType



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Closure (partial)

!ANB 02/256 3A0 13/31 NW 600 CLSD

M0383/07 NOTAMN(Q) /QMRXX

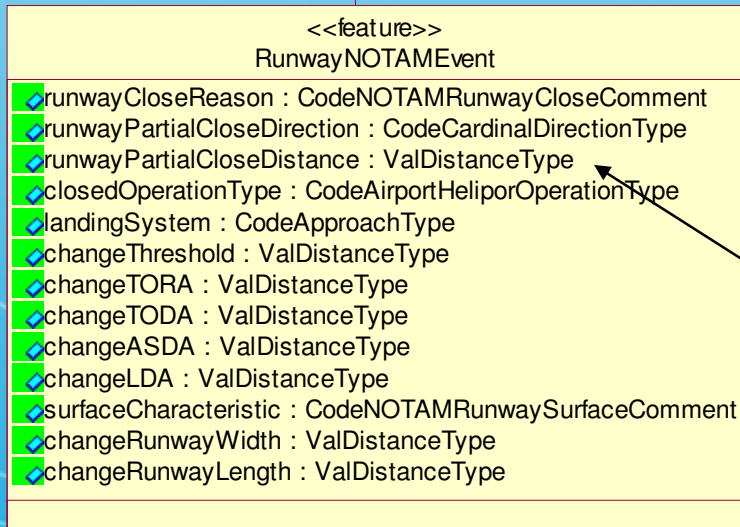
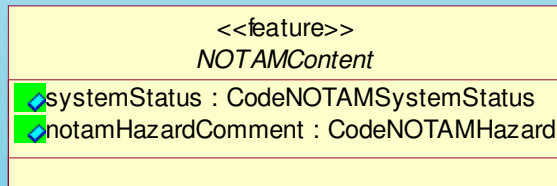
A) RJSM

B) 200705072100

C) 200708072100

E) RUNWAY 10/28 USABLE LENGTH IS 8000FT.

- How to encode this geospatial information
 - Allow the inclusion of the value as content
 - XSDfacet pattern for a positive integer with five digits and in ft or meters.



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