



# NATO phonetic alphabet

The **International Radiotelephony Spelling Alphabet** or simply the **Radiotelephony Spelling Alphabet**, commonly known as the **NATO phonetic alphabet**, is the most widely used set of clear-code words for communicating the letters of the Latin/Roman alphabet. Technically a *radiotelephonic spelling alphabet*, it goes by various names, including **NATO spelling alphabet**, **ICAO phonetic alphabet**, and **ICAO spelling alphabet**. The **ITU phonetic alphabet and figure code** is a rarely used variant that differs in the code words for digits.

Although spelling alphabets are commonly called "phonetic alphabets", they are not phonetic in the sense of phonetic transcription systems such as the International Phonetic Alphabet.

To create the code, a series of international agencies assigned 26 clear-code words (also known as "phonetic words") acrophonically to the letters of the Latin alphabet, with the goal that the letters and numbers would be easily distinguishable from one another over radio and telephone. The words were chosen to be accessible to speakers of English, French and Spanish. Some of the code words were changed over time, as they were found to be ineffective in real-life conditions. In 1956, NATO modified the then-current set used by the International Civil Aviation Organization (ICAO): the NATO version was accepted by ICAO that year, and by the International Telecommunication Union (ITU) a few years later, thus becoming the international standard.<sup>[1]</sup>

The 26 code words are as follows (ICAO spellings): *Alfa*, *Bravo*, *Charlie*, *Delta*, *Echo*, *Foxtrot*, *Golf*, *Hotel*, *India*, *Juliett*, *Kilo*, *Lima*, *Mike*, *November*, *Oscar*, *Papa*, *Quebec*, *Romeo*, *Sierra*, *Tango*, *Uniform*, *Victor*, *Whiskey*, *X-ray*, *Yankee*, and *Zulu*.<sup>[Note 1]</sup> (Alfa) and (Juliett) are spelled that way to avoid mispronunciation by people unfamiliar with English orthography; NATO changed (X-ray) to (Xray) for the same reason.<sup>[2]</sup> The code words for digits are their English names, though with their pronunciations modified in the cases of *three*, *four*, *five*, *nine* and *thousand*.

The code words have been stable since 1956. A 1955 NATO memo stated that:

It is known that [the spelling alphabet] has been prepared only after the most exhaustive tests on a scientific basis by several nations. One of the firmest conclusions reached was that it was not practical to make an isolated change to clear confusion between one pair of letters. To change one word involves reconsideration of the whole alphabet to ensure that the change proposed to clear one confusion does not itself introduce others.<sup>[3]</sup>

## International adoption

Soon after the code words were developed by ICAO (see history below), they were adopted by other national and international organizations, including the ITU, the International Maritime Organization (IMO), the United States Federal Government as Federal Standard 1037C: Glossary of Telecommunications Terms<sup>[4]</sup> and its successors ANSI T1.523-2001<sup>[5]</sup> and ATIS Telecom Glossary (ATIS-0100523.2019)<sup>[6]</sup> (all three using the spellings "Alpha" and "Juliet"), the United States Department of Defense,<sup>[7]</sup> the Federal Aviation Administration (FAA) (using the spelling "Xray"), the International Amateur Radio Union (IARU), the American Radio Relay League (ARRL), the Association of Public-Safety Communications Officials-International (APCO), and by many military organizations such as NATO (using the spelling "Xray") and the now-defunct Southeast Asia Treaty Organization (SEATO).

The same alphabetic code words are used by all agencies, but each agency chooses one of two different sets of numeric code words. NATO uses the regular English numerals (*zero*, *one*, *two*, etc., though with some differences in pronunciation), whereas the ITU (beginning on 1 April 1969)<sup>[8]</sup> and the IMO created compound code words (*nadazero*, *unaone*, *bissotwo* etc.). In practice the compound words are used very rarely.

## Usage

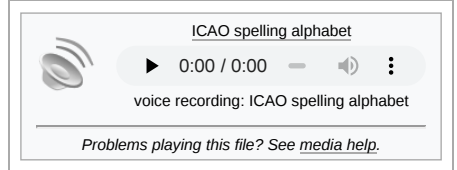
A spelling alphabet is used to distinguish those parts of a message that contain letters and digits, because the names of many letters sound similar, for instance *bee* and *pee*, *en* and *em* or *ef* and *ess*. The potential for confusion increases if static or other interference is present, as is commonly the case with radio and telephonic communication. For instance, the target message "proceed to map grid DH98" would be transmitted as *proceed to map grid Delta-Hotel-Niner-Ait*.

Civilian industry uses the code words to avoid similar problems in the transmission of messages by telephone systems. For example, it is often used in the retail industry where customer or site details are conveyed by telephone (for example to authorize a credit agreement or confirm stock codes), although ad-hoc code words are often used in that instance. It has been used by information technology workers to communicate serial numbers and reference codes, which are often very long, by voice. Most major airlines use the alphabet to communicate passenger name records (PNRs) internally, and in some cases, with customers. It is often used in a medical context as well.

Several codes words and sequences of code words have become well-known, such as **Bravo Zulu** (letter code BZ) for "well done",<sup>[9]</sup> **Checkpoint Charlie** (Checkpoint C) in Berlin, and **Zulu Time** for Greenwich Mean Time or Coordinated Universal Time. During the Vietnam War, the US government referred to the Viet Cong guerrillas and the group itself as VC, or Victor Charlie; the name "Charlie" became synonymous with this force.

Alphabetic code words

<b>Alfa</b>	<b>November</b>
<b>Bravo</b>	<b>Oscar</b>
<b>Charlie</b>	<b>Papa</b>
<b>Delta</b>	<b>Quebec</b>
<b>Echo</b>	<b>Romeo</b>
<b>Foxtrot</b>	<b>Sierra</b>
<b>Golf</b>	<b>Tango</b>
<b>Hotel</b>	<b>Uniform</b>
<b>India</b>	<b>Victor</b>
<b>Juliett</b>	<b>Whiskey</b>
<b>Kilo</b>	<b>Xray</b>
<b>Lima</b>	<b>Yankee</b>
<b>Mike</b>	<b>Zulu</b>



Pronunciation of code words

The final choice of code words for the letters of the alphabet and for the digits was made after hundreds of thousands of comprehension tests involving 31 nationalities. The qualifying feature was the likelihood of a code word being understood in the context of others. For example, *Football* has a higher chance of being understood than *Foxtrot* in isolation, but *Foxtrot* is superior in extended communication.<sup>[10]</sup>

Pronunciations were set out by the ICAO before 1956 with advice from the governments of both the United States and United Kingdom.<sup>[11]</sup> To eliminate national variations in pronunciation, posters illustrating the pronunciation desired by ICAO are available.<sup>[12]</sup> However, there remain differences in the pronunciations published by ICAO and other agencies, and ICAO has apparently conflicting Latin-alphabet and IPA transcriptions. At least some of these differences appear to be typographic errors. In 2022, the Deutsches Institut für Normung (DIN) attempted to resolve these conflicts.<sup>[13]</sup> For example, they consistently transcribe [a] for what the ICAO had transcribed variously as [a], [aː], [ɑ], [ɑː], [æ], [ə] in IPA and as *a*, *ah*, *ar*, *er* in orthography.

Just as words are spelled out as individual letters, numbers are spelled out as individual digits. That is, 17 is rendered as *one seven* and 60 as *six zero*. Depending on context, the word *thousand* may be used as in English, and, for whole hundreds only (when the sequence 00 occurs at the end of a number), the word *hundred* may be used. For example, 1300 is read as *one three zero zero* if it is a transponder code or serial number, and as *one thousand three hundred* if it is an altitude or distance.

The ICAO, NATO, and FAA use modifications of English digits as code words, with 3, 4, 5 and 9 being pronounced *tree*, *fower* (rhymes with *lower*), *fife* and *niner*. The digit 3 is specified as *tree* so that it will not be mispronounced *sri* (and similarly *thousand* is pronounced *tousand*); the long pronunciation of 4 (still found in some English dialects) keeps it somewhat distinct from *for*; 5 is pronounced with a second "f" because the normal pronunciation with a "v" is easily confused with "fire"; and 9 has an extra syllable to keep it distinct from the German word *nein* "no".<sup>[14]</sup> (Prior to 1956, *three* and *five* had been pronounced with the English consonants, but with the vowels broken into two syllables.) For directions presented as the hour-hand position on a clock, the additional numerals "ten", "eleven" and "twelve" are used with the word "o'clock".<sup>[12]:5–7</sup>

The ITU and IMO, however, specify a different set of code words. These are compounds of ICAO and Latinesque roots.<sup>[15]</sup> The IMO's GMDSS procedures permits the use of either set of code words.<sup>[15]</sup>

FAA radiotelephony alphabet and Morse code chart

CHARACTER	MORSE CODE	TELEPHONY	PHONIC (PRONUNCIATION)
A	• —	Alfa	(AL-FAH)
B	— •••	Bravo	(BRAH-VOH)
C	— • — •	Charlie	(CHAR-LEE) or (SHAR-LEE)
D	— ••	Delta	(DELL-TAH)
E	•	Echo	(ECK-OH)
F	•• — •	Foxtrot	(FOKS-TROT)
G	— — •	Golf	(GOLF)
H	••••	Hotel	(HOH-TEL)
I	••	India	(IN-DEE-AH)
J	• — — —	Juliett	(JEW-LEE-ETT)
K	— • —	Kilo	(KEY-LOH)
L	• — ••	Lima	(LEE-MAH)
M	— —	Mike	(MIKE)
N	— •	November	(NO-VEH-BER)
O	— — —	Oscar	(OSS-CAH)
P	• — — •	Papa	(PAH-PAH)
Q	— • — —	Quebec	(KEH-BECK)
R	•• —	Romeo	(ROW-ME-OH)
S	•••	Sierra	(SEE-AIR-RAH)
T	—	Tango	(TANG-GO)
U	•• —	Uniform	(YOU-NEE-FORM) or (OO-NEE-FORM)
V	••• —	Victor	(VIK-TAH)
W	• — —	Whiskey	(WISS-KEY)
X	— •• —	Xray	(ECKS-RAY)
Y	— • — —	Yankee	(YANG-KEY)
Z	— — ••	Zulu	(ZOO-LOO)
1	• — — — —	One	(WUN)
2	•• — — —	Two	(TOO)
3	••• — —	Three	(TREE)
4	•••• —	Four	(FOW-ER)
5	•••••	Five	(FIFE)
6	— ••••	Six	(SIX)
7	— — •••	Seven	(SEV-EN)
8	— — — ••	Eight	(AIT)
9	— — — — •	Nine	(NIN-ER)
0	— — — — —	Zero	(ZEE-RO)

Tables

There are two IPA transcriptions of the letter names, from the International Civil Aviation Organization (ICAO) and the Deutsches Institut für Normung (DIN). Both authorities indicate that a non-rhotic pronunciation is standard.<sup>[Note 2]</sup> That of the ICAO, first published in 1950 and reprinted many times without correction (e.g. the error in 'golf'), uses a large number of vowels. For instance, it has six low/central vowels: [æ] [a] [aː] [ɑ] [ɑː] [ə]. The DIN consolidated all six into the single low-central vowel [a]. The DIN vowels are partly predictable, with [ɪ ɛ ɔ] in closed syllables and [i e/ɛj o] in open syllables apart from *echo* and *sierra*, which have [ɛ] as in English, German and Italian. The DIN also reduced the number of stressed syllables in *bravo* and *x-ray*, consistent with the ICAO English respellings of those words and with the NATO change of spelling of *x-ray* to *xray* so that people would know to pronounce it as a single word.

Letter code words with pronunciation

Symbol	Code word	DIN 5009 (2022) IPA <sup>[13]</sup>	ICAO (1950) <sup>[12]</sup>	
			IPA	English respelling
A	Alfa <i>[sic]</i>	'alfa	'ælfɑ	AL fah
B	Bravo	'bravo	'bra:'vɔ <i>[sic]</i>	BRAH voh
C	Charlie	'tʃali (or 'ʃali)	'tʃɑ:li (or 'ʃɑ:li)	CHAR lee (or SHAR lee) <sup>[16]</sup>
D	Delta	'delta	'delta	DELL tah
E	Echo	'eko	'eko	ECK oh
F	Foxtrot	'fɒkstɹɒt	'fɒkstɹɒt	FOKS trot
G	Golf	'ɡɒlf	ɡʌlf <i>[sic]</i>	golf
H	Hotel	ho'tel	ho:'tel	ho TELL
I	India	'ɪndia	'ɪndi.ɑ	IN dee ah
J	Juliett <i>[sic]</i>	'dʒuli'et	'dʒu:li.'et	JEW lee ETT
K	Kilo	'kilo	'ki:lo	KEY loh
L	Lima	'lima	'li:ma	LEE mah
M	Mike	'majk	maik	mike
N	November	no'vɛmba	no'vembə	no VEM ber
O	Oscar	'ɔska	'ɔska	OSS cah
P	Papa	pɑ'pa	pə'pɑ	pah PAH
Q	Quebec	ke'bɛk <i>[sic]</i>	ke'bɛk	keh BECK
R	Romeo	'romio	'ro:mi.o	ROW me oh
S	Sierra	si'era	si'era	see AIR rah
T	Tango	'tango	'tængo	TANG go
U	Uniform	'junɪfɔm (or 'unɪfɔm)	'ju:nɪfɔ:m (or 'u:nɪfɔrm <i>[sic]</i> )	YOU nee form (or OO nee form) <sup>[16]</sup>
V	Victor	'vɪkta	'vikta	VIK tah
W	Whiskey	'wɪski	'wiski	WISS key
X	Xray, x-ray	'ɛksreɪ	'ɛks'rei <i>[sic]</i>	ECKS ray
Y	Yankee	'jɑŋki	'jænki	YANG key
Z	Zulu	'zulu	'zu:lu:	ZOO loo

There is no authoritative IPA transcription of the digits. However, there are respellings into both English and French, which can be compared to clarify some of the ambiguities and inconsistencies.

Symbol	Code word	Respellings						
		ICAO <sup>[12]</sup> (English)	SIA <sup>[17]</sup> (French)	CCEB 2016 <sup>[18]</sup>	FAA <sup>[19]</sup>	ITU-R 2007 (WRC-07) <sup>[20]</sup> IMO (English) <sup>[21]</sup>	IMO (French) <sup>[21]</sup>	US 1951 <sup>[22]</sup>
1	One, unaone	WUN	OUANN	wun	wun	OO-NAH-WUN	OUNA-OUANN	wun
2	Two, bisso <b>two</b>	TOO	TOU	too	too	BEES-SOH-TOO	BIS-SO-TOU	too
3	Three, terrath <b>ree</b>	TREE	TRI	tree	tree	TAY-RAH-TREE	TÉ-RA-TRI	thuh
4	Four, kartef <b>four</b>	FOW-er	FO eur	FOW-er	fow-er	KAR-TAY-POWER	KAR-TÉ-FO-EUR	fo-w
5	Five, pantaf <b>ive</b>	FIFE	FA ÎF <sup>[sic]</sup>	fife	fife	PAN-TAH-FIVE	PANN-TA-FAIF	fi-yi
6	Six, soxis <b>ix</b>	SIX	SIKS	six	six	SOK-SEE-SIX	SO-XI-SICKS	six
7	Seven, settese <b>ven</b>	SEV-en	SÈV n	SEV-en	sev-en	SAY-TAY-SEVEN	SÉT-TÉ-SEV'N <sup>[sic]</sup>	seve
8	Eight, oktoe <b>ight</b>	AIT	EÎT	ait	ait	OK-TOH-AIT	OK-TO-EIT	ate
9	Nine, novene <sup>[Note 3]</sup>	NIN-er	NAÏ neu	NINE-er	nin-er	NO-VAY-NINER	NO-VÉ-NAI-NEU	nine
0	Zero, nadaze <b>ro</b>	ZE-RO (ZEE-ro) <sup>[Note 4]</sup>	ZI RO	ZE-ro	ze-ro / zee-ro	NAH-DAH-ZAY-ROH <sup>[Note 5][Note 6]</sup>	NA-DA-ZE-RO <sup>[Note 5][Note 6]</sup>	zero
00	Hundred	HUN-dred	HUN-dred	(zero zero)	(hundred)			hun-
000	Thousand	TOU-SAND (TOU-sand) <sup>[Note 4]</sup>	TAOU ZEND	(zero zero zero)	(thousand)			thow
(decimal point)	Decimal, (FAA) point	DAY-SEE-MAL <sup>[Note 4]</sup>	DÈ SI MAL	(decimal)	(point)	DAY-SEE-MAL	DÉ-SI-MAL	

CCEB has code words for punctuation, including those in the table below.

Punctuation code words (CCEB)

Symbol	Code word
.	<b>stop</b> (when not a decimal point)
,	<b>comma</b> (when not a decimal comma)
-	<b>hyphen</b> , (FAA) <b>dash</b>
/	<b>slant</b>
(	<b>brackets on</b>
)	<b>brackets off</b>

Others are: "colon", "semi-colon", "exclamation mark", "question mark", "apostrophe", "quote", and "unquote".<sup>[18]</sup>

## History

Prior to World War I and the development and widespread adoption of two-way radio that supported voice, telephone spelling alphabets were developed to improve communication on low-quality and long-distance telephone circuits.

The first non-military internationally recognized spelling alphabet was adopted by the CCIR (predecessor of the ITU) during 1927. The experience gained with that alphabet resulted in several changes being made during 1932 by the ITU. The resulting alphabet was adopted by the International Commission for Air Navigation, the predecessor of the ICAO, and was used for civil aviation until World War II.<sup>[11]</sup> It continued to be used by the IMO until 1965.

Throughout World War II, many nations used their own versions of a spelling alphabet. The US adopted the Joint Army/Navy radiotelephony alphabet during 1941 to standardize systems among all branches of its armed forces. The US alphabet became known as *Able Baker* after the words for A and B. The Royal Air Force adopted one similar to the United States one during World War II as well. Other British forces adopted the RAF radio alphabet, which is similar to the phonetic alphabet used by the Royal Navy during World War I. At least two of the terms are sometimes still used by UK civilians to spell words over the phone, namely *F for Freddie* and *S for Sugar*.

To enable the US, UK, and Australian armed forces to communicate during joint operations, in 1943 the CCB (Combined Communications Board; the combination of US and UK upper military commands) modified the US military's Joint Army/Navy alphabet for use by all three nations, with the result being called the US-UK spelling alphabet. It was defined in one or more of CCBP-1: *Combined Amphibious Communications Instructions*, CCBP3: *Combined Radiotelephone (R/T) Procedure*, and CCBP-7: *Combined Communication Instructions*. The CCB alphabet itself was based on the US Joint Army/Navy spelling alphabet. The CCBP (Combined Communications Board Publications) documents contain material formerly published in US Army Field Manuals in the 24-series. Several of these documents had revisions, and were renamed. For instance, CCBP3-2 was the second edition of CCBP3.

During World War II, the US military conducted significant research into spelling alphabets. Major F. D. Handy, directorate of Communications in the Army Air Force (and a member of the working committee of the Combined Communications Board), enlisted the help of Harvard University's Psycho-Acoustic Laboratory, asking them to determine the most successful word for each letter when using "military interphones in the intense noise encountered in modern warfare." He included lists from the US, Royal Air Force, Royal Navy, British Army, AT&T, Western Union, RCA Communications, and that of the International Telecommunications Convention. According to a report on the subject:

The results showed that many of the words in the military lists had a low level of intelligibility, but that most of the deficiencies could be remedied by the judicious selection of words from the commercial codes and those tested by the laboratory. In a few instances where none of the 250 words could be regarded as especially satisfactory, it was believed possible to discover suitable replacements. Other words were tested and the most intelligible ones were compared with the more desirable lists. A final NDRC list was assembled and recommended to the CCB.<sup>[25]</sup>

After World War II, with many aircraft and ground personnel from the allied armed forces, "Able Baker" was officially adopted for use in international aviation. During the 1946 Second Session of the ICAO Communications Division, the organization adopted the so-called "Able Baker" alphabet<sup>[10]</sup> that was the 1943 US-UK spelling alphabet. However, many sounds were unique to English, so an alternative "Ana Brazil" alphabet was used in Latin America. In spite of this, International Air Transport Association (IATA), recognizing the need for a single universal alphabet, presented a draft alphabet to the ICAO during 1947 that had sounds common to English, French, Spanish and Portuguese.

From 1948 to 1949, Jean-Paul Vinay, a professor of linguistics at the Université de Montréal, worked closely with the ICAO to research and develop a new spelling alphabet.<sup>[26][10]</sup> The directions of ICAO were that "To be considered, a word must:

1. Be a live word in each of the three working languages.
2. Be easily pronounced and recognized by airmen of all languages.
3. Have good radio transmission and readability characteristics.
4. Have a similar spelling in at least English, French, and Spanish, and the initial letter must be the letter the word identifies.
5. Be free from any association with objectionable meanings."<sup>[25]</sup>

After further study and modification by each approving body, the revised alphabet was adopted on 1 November 1951, to become effective on 1 April 1952 for civil aviation (but it may not have been adopted by any military).<sup>[11]</sup>

Problems were soon found with this list. Some users believed that they were so severe that they reverted to the old "Able Baker" alphabet. Confusion among words like *Delta* and *Extra*, and between *Nectar* and *Victor*, or the poor intelligibility of other words during poor receiving conditions were the main problems. Later in 1952, ICAO decided to revisit the alphabet and their research. To identify the deficiencies of the new alphabet, testing was conducted among speakers from 31 nations, principally by the governments of the United Kingdom and the United States. In the United States, the research was conducted by the USAF-directed Operational Applications Laboratory (AFCRC, ARDC), to monitor a project with the Research Foundation of Ohio State University. Among the more interesting of the research findings was that "higher noise levels do not create confusion, but do intensify those confusions already inherent between the words in question".<sup>[25]</sup>

By early 1956 the ICAO was nearly complete with this research, and published the new official phonetic alphabet in order to account for discrepancies that might arise in communications as a result of multiple alphabet naming systems coexisting in different places and organizations. NATO was in the process of adopting the ICAO spelling alphabet, and apparently felt enough urgency that it adopted the proposed new alphabet with changes based on NATO's own research, to become effective on 1 January 1956,<sup>[27]</sup> but quickly issued a new directive on 1 March 1956<sup>[28]</sup> adopting the now official ICAO spelling alphabet, which had changed by one word (November) from NATO's earlier request to ICAO to modify a few words based on US Air Force research.

After all of the above study, only the five words representing the letters C, M, N, U, and X were replaced. The ICAO sent a recording of the new *Radiotelephony Spelling Alphabet* to all member states in November 1955.<sup>[10]</sup> The final version given in the table above was implemented by the ICAO on 1 March 1956,<sup>[11]</sup> and the ITU adopted it no later than 1959 when they mandated its usage via their official publication, *Radio Regulations*.<sup>[29]</sup> Because the ITU governs all international radio communications, it was also adopted by most radio operators, whether military, civilian, or amateur. It was finally adopted by the IMO in 1965.

During 1947 the ITU adopted the compound Latinate prefix-number words (*Nadazero*, *Unaone*, etc.), later adopted by the IMO during 1965.

- Nadazero – from Spanish or Portuguese nada + NATO/ICAO zero
- Unaone – generic Romance una, from Latin ūna + NATO/ICAO one
- Bissotwo – from Latin bis + NATO/ICAO two. (1959 ITU proposals bis and too)<sup>[30]</sup>
- Terrathree – from Italian terzo + NATO/ICAO three ("tree") (1959 ITU proposals ter and tree)
- Kartefour – from French quatre (Latin quartus) + NATO/ICAO four ("fow-er") (1959 ITU proposals quarto and fow-er)
- Pantafive – from Greek penta- + NATO/ICAO five ("fife") (From 1959 ITU proposals penta and fife)
- Soxisix – from French soix + NATO/ICAO six (1959 ITU proposals were saxo and six)
- Setteseven – from Italian sette + NATO/ICAO seven (1959 ITU proposals sette and sev-en)
- Oktoeight – generic Romance octo-, from Latin octō + NATO/ICAO eight (1959 ITU proposals octo and ait)
- Novenine – from Italian nove + NATO/ICAO nine ("niner") (1959 ITU proposals were nona and niner)

In the official version of the alphabet,<sup>[31]</sup> two spellings deviate from the English norm: *Alfa* and *Juliatt*. *Alfa* is spelled with an *f* as it is in most European languages because the spelling *Alpha* may not be pronounced properly by native speakers of some languages – who may not know that *ph* should be pronounced as *f*. The spelling *Juliatt* is used rather than *Juliet* for the benefit of French speakers, because they may otherwise treat a single final *t* as silent. For similar reasons, *Charlie* and *Uniform* have alternative pronunciations where the *ch* is pronounced "sh" and the *u* is pronounced "oo". Early on, the NATO alliance changed *X-ray* to *Xray* in its version of the alphabet to ensure that it would be pronounced as one word rather than as two,<sup>[32]</sup> while the global organization ICAO keeps the spelling *X-ray*.

The alphabet is defined by various international conventions on radio, including:

- Universal Electrical Communications Union (UECU), Washington, D.C., December 1920<sup>[33]</sup>
- International Radiotelegraph Convention, Washington, 1927 (which created the CCIR)<sup>[34]</sup>
- General Radiocommunication and Additional Regulations (Madrid, 1932)<sup>[35]</sup>
- Instructions for the International Telephone Service, 1932 (ITU-T E.141; withdrawn in 1993)
- General Radiocommunication Regulations and Additional Radiocommunication Regulations (Cairo, 1938)<sup>[36]</sup>
- Radio Regulations and Additional Radio Regulations (Atlantic City, 1947),<sup>[37]</sup> where "it was decided that the International Civil Aviation Organization and other international aeronautical organizations would assume the responsibility for procedures and regulations related to

aeronautical communication. However, ITU would continue to maintain general procedures regarding distress signals."

- 1959 Administrative Radio Conference (Geneva, 1959)<sup>[38]</sup>
- International Telecommunication Union, Radio
- Final Acts of WARC-79 (Geneva, 1979).<sup>[39]</sup> Here the alphabet was formally named "Phonetic Alphabet and Figure Code".
- International Code of Signals for Visual, Sound, and Radio Communications, United States Edition, 1969 (revised 2003)<sup>[40]</sup>

Tables

Timeline in developm

Letter	1920 UECU <sup>[33]</sup>	1927 (Washington, D.C.) International Radiotelegraph Convention (CCIR) <sup>[34]</sup>	1932 General Radiocommunication and Additional Regulations (CCIR/ICAN) <sup>[41][42]</sup>	1938 (Cairo) International Radiocommunication Conference code words <sup>[36]</sup>	1947 (Atlantic City) International Radio Conference <sup>[43]</sup>	1947 ICAO (from 1943 US–UK) <sup>[44]</sup>  <sup>[45][42]</sup>	1947 ICAO alphabet (from ARRL) <sup>[46]</sup>	194 Americ
A	Argentina	Amsterdam	Amsterdam	Amsterdam	Amsterdam	ABLE	ADAM	ANA
B	Brussels	Baltimore	Baltimore	Baltimore	Baltimore	BAKER	BAKER	BRAZI
C	Canada	Canada	Casablanca	Casablanca	Casablanca	CHARLIE	CHARLIE	COCO
D	Damascus	Denmark	Danemark	Danemark	Danemark	DOG	DAVID	DADO
E	Ecuador	Eddystone	Edison	Edison	Edison	EASY	EDWARD	ELSA
F	France	Francisco	Florida	Florida	Florida	FOX	FREDDIE	FIEST
G	Greece	Gibraltar	Gallipoli	Gallipoli	Gallipoli	GEORGE	GEORGE	GATO
H	Hanover	Hanover	Havana	Havana	Havana	HOW	HARRY	HOMB
I	Italy	Italy	Italia	Italia	Italia	ITEM	IDA	INDIA
J	Japan	Jerusalem	Jérusalem	Jérusalem	Jerusalem	JIG	JOHN	JULIO
K	Khartoum	Kimberley	Kilogramme	Kilogramme	Kilogramme	KING	KING	KILO
L	Lima	Liverpool	Liverpool	Liverpool	Liverpool	LOVE	LEWIS	LUIS
M	Madrid	Madagascar	Madagascar	Madagascar	Madagascar	MIKE	MARY	MAMA
N	Nancy	Neufchatel	New York	New-York	New York	NAN	NANCY	NORM
O	Ostend	Ontario	Oslo	Oslo	Oslo	OBOE	OTTO	OPER
P	Paris	Portugal	Paris	Paris	Paris	PETER	PETER	PERU
Q	Quebec	Quebec	Québec	Québec	Quebec	QUEEN	QUEEN	QUEBI
R	Rome	Rivoli	Roma	Roma	Roma	ROGER	ROBERT	ROSA
S	Sardinia	Santiago	Santiago	Santiago	Santiago	SUGAR	SUSAN	SARA
T	Tokio	Tokio	Tripoli	Tripoli	Tripoli	TARE	THOMAS	TOMA
U	Uruguay	Uruguay	Upsala	Upsala	Upsala	UNCLE	UNION	URUG
V	Victoria	Victoria	Valencia	Valencia	Valencia	VICTOR	VICTOR	VICTO
W	Washington	Washington	Washington	Washington	Washington	WILLIAM	WILLIAM	WHISK
X	Xaintrie	Xantippe	Xanthippe	Xanthippe	Xanthippe	XRAY	X-RAY	EQUIS
Y	Yokohama	Yokohama	Yokohama	Yokohama	Yokohama	YOKE	YOUNG	YOLAN
Z	Zanzibar	Zululand	Zürich	Zurich	Zurich	ZEBRA	ZEBRA	ZETA
0				Jérusalem <sup>[Note 7]</sup>	Jerusalem <sup>[Note 7]</sup>	Zero		
1				Amsterdam <sup>[Note 7]</sup>	Amsterdam <sup>[Note 7]</sup>	Wun		
2				Baltimore <sup>[Note 7]</sup>	Baltimore <sup>[Note 7]</sup>	Too		
3				Casablanca <sup>[Note 7]</sup>	Casablanca <sup>[Note 7]</sup>	Thuh-ree		
4				Danemark <sup>[Note 7]</sup>	Danemark <sup>[Note 7]</sup>	Fo-wer		
5				Edison <sup>[Note 7]</sup>	Edison <sup>[Note 7]</sup>	Fi-yiv		
6				Florida <sup>[Note 7]</sup>	Florida <sup>[Note 7]</sup>	Six		
7				Gallipoli <sup>[Note 7]</sup>	Gallipoli <sup>[Note 7]</sup>	Seven		
8				Havana <sup>[Note 7]</sup>	Havana <sup>[Note 7]</sup>	Ate		
9				Italia <sup>[Note 7]</sup>	Italia <sup>[Note 7]</sup>	Niner		
. (decimal point)								
Hundred								
Thousand								

,				Kilogramme <sup>[Note 7]</sup>	Kilogramme <sup>[Note 7]</sup>			
/ (fraction bar)				Liverpool <sup>[Note 7]</sup>	Liverpool <sup>[Note 7]</sup>			
(break signal)				Madagascar <sup>[Note 7]</sup>	Madagascar <sup>[Note 7]</sup>			
. (punctuation)				New-York <sup>[Note 7]</sup>	New York <sup>[Note 7]</sup>			

For the 1938 and 1947 phonetics, each transmission of figures is preceded and followed by the words "as a number" spoken twice.

The ITU adopted the IMO phonetic spelling alphabet in 1959,<sup>[47]</sup> and in 1969 specified that it be "for application in the maritime mobile service only".<sup>[48]</sup>

Pronunciation was not defined prior to 1959. For the post-1959 phonetics, the underlined syllable of each letter word should be emphasized, and each syllable of the code words for the post-1969 figures should be equally emphasized.

## International aviation

The Radiotelephony Spelling Alphabet is used by the International Civil Aviation Organization for international aircraft communications.<sup>[31][12]</sup>



Timeline in development of the ICAO/ITU-R radiotelephony spelling alphabet

Letter	1932 General Radiocommunication and Additional Regulations (CCIR/ICAN) <sup>[41][42]</sup>	1946 ICAO Second Session of the Communications Division (same as Joint Army/Navy) <sup>[25]</sup>	1947 ICAO (same as 1943 US-UK) <sup>[44]</sup> <sup>[45][42]</sup>	1947 ICAO alphabet (adopted exactly from ARRL) <sup>[46]</sup>	1947 ICAO Latin America / Caribbean <sup>[25]</sup>	1949 ICAO code words <sup>[25]</sup>	1951 ICAO code words <sup>[26]</sup>	1956–present ICAO code words <sup>[12]</sup>
<b>A</b>	Amsterdam	Able	ABLE	ADAM	ANA	Alfa	Alfa	Alfa
<b>B</b>	Baltimore	Baker	BAKER	BAKER	BRAZIL	Beta	Bravo	Bravo
<b>C</b>	Casablanca	Charlie	CHARLIE	CHARLIE	COCO	Coca	Coca	Charlie
<b>D</b>	Danemark	Dog	DOG	DAVID	DADO	Delta	Delta	Delta
<b>E</b>	Edison	Easy	EASY	EDWARD	ELSA	Echo	Echo	Echo
<b>F</b>	Florida	Fox	FOX	FREDDIE	FIESTA	Foxtrot	Foxtrot	Foxtrot
<b>G</b>	Gallipoli	George	GEORGE	GEORGE	GATO	Golf	Gold	Golf
<b>H</b>	Havana	How	HOW	HARRY	HOMBRE	Hotel	Hotel	Hotel
<b>I</b>	Italia	Item	ITEM	IDA	INDIA	India	India	India
<b>J</b>	Jérusalem	Jig	JIG	JOHN	JULIO	Julietta	Juliett	Juliett
<b>K</b>	Kilogramme	King	KING	KING	KILO	Kilo	Kilo	Kilo
<b>L</b>	Liverpool	Love	LOVE	LEWIS	LUIS	Lima	Lima	Lima
<b>M</b>	Madagascar	Mike	MIKE	MARY	MAMA	Metro	Metro	Mike
<b>N</b>	New York	Nan (later Nickel)	NAN	NANCY	NORMA	Nectar	Nectar	November
<b>O</b>	Oslo	Oboe	OBOE	OTTO	OPERA	Oscar	Oscar	Oscar
<b>P</b>	Paris	Peter	PETER	PETER	PERU	Polka	Papa	Papa
<b>Q</b>	Québec	Queen	QUEEN	QUEEN	QUEBEC	Quebec	Quebec	Quebec
<b>R</b>	Roma	Roger	ROGER	ROBERT	ROSA	Romeo	Romeo	Romeo
<b>S</b>	Santiago	Sail/Sugar	SUGAR	SUSAN	SARA	Sierra	Sierra	Sierra
<b>T</b>	Tripoli	Tare	TARE	THOMAS	TOMAS	Tango	Tango	Tango
<b>U</b>	Upsala	Uncle	UNCLE	UNION	URUGUAY	Union	Union	Uniform
<b>V</b>	Valencia	Victor	VICTOR	VICTOR	VICTOR	Victor	Victor	Victor
<b>W</b>	Washington	William	WILLIAM	WILLIAM	WHISKEY	Whiskey	Whiskey	Whisky
<b>X</b>	Xanthippe	X-ray	XRAY	X-RAY	EQUIS	X-RAY	eXtra	X-ray
<b>Y</b>	Yokohama	Yoke	YOKE	YOUNG	YOLANDA	Yankey	Yankee	Yankee
<b>Z</b>	Zürich	Zebra	ZEBRA	ZEBRA	ZETA	Zebra	Zulu	Zulu
<b>0</b>		Zero	Zero					Zero
<b>1</b>		One	Wun					One
<b>2</b>		Two	Too					Two
<b>3</b>		Three	Thuh-ree					Three
<b>4</b>		Four	Fo-wer					Four
<b>5</b>		Five	Fi-yiv					Five
<b>6</b>		Six	Six					Six
<b>7</b>		Seven	Seven					Seven
<b>8</b>		Eight	Ate					Eight
<b>9</b>		Nine	Niner					Niner
<b>.</b>								Decimal
<b>100</b>								Hundred
<b>1000</b>								Thousand

## International maritime mobile service

The ITU-R Radiotelephony Alphabet is used by the [International Maritime Organization](#) for international marine communications.

Letter	1932–1965 IMO code words <sup>[49]</sup>	1965–present (WRC-03) IMO code words <sup>[50]</sup>	1967 WARC code words <sup>[51]</sup>	2000–present IMO SMCP pronunciations <sup>[50]</sup>	1967 WARC pronunciations <sup>[51]</sup>	2007–present ITU-R pronunciations <sup>[20]</sup>
<b>A</b>	Amsterdam	Alfa		<u>Al</u> fa	<u>AL</u> FAH	<u>AL</u> FAH
<b>B</b>	Baltimore	Bravo		<u>Br</u> avo	<u>BRAH</u> VOH	<u>BRAH</u> VOH
<b>C</b>	Casablanca	Charlie		<u>Char</u> lie	<u>CHAR</u> LEE <i>or</i> <u>SHAR</u> LEE	<u>CHAR</u> LEE <i>or</i> <u>SHAR</u> LEE
<b>D</b>	Danemark	Delta		<u>Del</u> ta	<u>DELL</u> TAH	<u>DELL</u> TAH
<b>E</b>	Edison	Echo		<u>Ech</u> o	<u>ECK</u> OH	<u>ECK</u> OH
<b>F</b>	Florida	Foxtrot		<u>Fo</u> xtrot	<u>FOKS</u> TROT	<u>FOKS</u> TROT
<b>G</b>	Gallipoli	Golf		Gol <u>f</u>	GOLF	GOLF
<b>H</b>	Havana	Hotel		Hot <u>el</u>	HOH <u>TELL</u>	HOH <u>TELL</u>
<b>I</b>	Italia	India		<u>Ind</u> ia	<u>IN</u> DEE AH	<u>IN</u> DEE AH
<b>J</b>	Jérusalem	Juliett		Jul <u>iet</u>	<u>JEW</u> LEE <u>ETT</u>	<u>JEW</u> LEE <u>ETT</u>
<b>K</b>	Kilogramme	Kilo		<u>Kil</u> o	<u>KEY</u> LOH	<u>KEY</u> LOH
<b>L</b>	Liverpool	Lima		<u>Lim</u> a	<u>LEE</u> MAH	<u>LEE</u> MAH
<b>M</b>	Madagascar	Mike		Mike	MIKE	MIKE
<b>N</b>	New-York	November		Nov <u>em</u> ber	NO <u>VEM</u> BER	NO <u>VEM</u> BER
<b>O</b>	Oslo	Oscar		<u>Osc</u> ar	<u>OSS</u> CAH	<u>OSS</u> CAH
<b>P</b>	Paris	Papa		<u>Pap</u> a	PAH <u>PAH</u>	PAH <u>PAH</u>
<b>Q</b>	Québec	Quebec		Que <u>bec</u>	KEH <u>BECK</u>	KEH <u>BECK</u>
<b>R</b>	Roma	Romeo		<u>Rom</u> eo	<u>ROW</u> ME OH	<u>ROW</u> ME OH
<b>S</b>	Santiago	Sierra		<u>Sierr</u> a	SEE <u>AIR</u> RAH	SEE <u>AIR</u> RAH
<b>T</b>	Tripoli	Tango		<u>Tang</u> o	<u>TANG</u> GO	<u>TANG</u> GO
<b>U</b>	Upsala	Uniform		<u>Unif</u> orm	<u>YOU</u> NEE FORM <i>or</i> <u>QQ</u> NEE FORM	<u>YOU</u> NEE FORM <i>or</i> <u>QQ</u> NEE FORM
<b>V</b>	Valencia	Victor		<u>Vict</u> or	<u>VIK</u> TAH	<u>VIK</u> TAH
<b>W</b>	Washington	Whisky		<u>Whisk</u> y	<u>WISS</u> KEY	<u>WISS</u> KEY
<b>X</b>	Xanthippe	X-ray		<u>X</u> -ray	<u>ECKS</u> RAY	<u>ECKS</u> RAY
<b>Y</b>	Yokohama	Yankee		<u>Yan</u> kee	<u>YANG</u> KEY	<u>YANG</u> KEY
<b>Z</b>	Zurich	Zulu		<u>Zulu</u>	<u>ZOO</u> LOO	<u>ZOO</u> LOO
<b>0</b>	Zero	<u>ZE</u> ERO	NADAZERO	<u>ZE</u> ERO	NAH-DAH-ZAY-ROH	NAH-DAH-ZAY-ROH
<b>1</b>	One	<u>WUN</u>	UNAONE	<u>WUN</u>	OO-NAH-WUN	OO-NAH-WUN
<b>2</b>	Two	<u>TOO</u>	BISSOTWO	<u>TOO</u>	BEES-SOH-TOO	BEES-SOH-TOO
<b>3</b>	Three	<u>TREE</u>	TERRATHREE	<u>TREE</u>	TAY-RAH-TREE	TAY-RAH-TREE
<b>4</b>	Four	<u>FO</u> WER	KARTEFOUR	<u>FO</u> WER	KAR-TAY-FOWER	KAR-TAY-FOWER
<b>5</b>	Five	<u>FIF</u> E	PANTAFIVE	<u>FIF</u> E	PAN-TAH-FIVE	PAN-TAH-FIVE
<b>6</b>	Six	SIX	SOXISIX	SIX	SOK-SEE-SIX	SOK-SEE-SIX
<b>7</b>	Seven	<u>SE</u> VEN	SETTESEVEN	<u>SE</u> VEN	SAY-TAY-SEVEN	SAY-TAY-SEVEN
<b>8</b>	Eight	AIT	OKTOEIGHT	AIT	OK-TOH-AIT	OK-TOH-AIT
<b>9</b>	Nine	<u>NIN</u> ER	NOVENINE	<u>NIN</u> ER	NO-VAY-NINER	NO-VAY-NINER
.			DECIMAL		DAY-SEE-MAL	DAY-SEE-MAL
.	Full stop		STOP		STOP	STOP
,	Comma					
	Break signal					
/	Fraction bar					
<b>1000</b>		<u>TOU</u> SAND		<u>TOU</u> SAND		

## Variants

Since "Nectar" was changed to "November" in 1956, the code has been mostly stable. However, there is occasional regional substitution of a few code words, such as replacing them with earlier variants, to avoid confusion with local terminology.

- As of 2013, it was reported that "Delta" was often replaced by "David" or "Dixie" at Atlanta International Airport, where Delta Air Lines is based, because "Delta" is also the airline's callsign.<sup>[52]</sup> Air traffic control once referred to Taxiway D at the same airport as "Taxiway Dixie", though this practice was officially discontinued in 2020.<sup>[53][54][55]</sup>
- "Foxtrot" may be shortened to "Fox" at airports in the United States.<sup>[56]</sup>
- British police use "Indigo" rather than "India".<sup>[56]</sup>

- In Indonesia, "London" is used in place of "Lima", because *lima* is the Malay word for 'five'.<sup>[56]</sup>
- It has been reported that "Hawk" is sometimes used for "Hotel" in the Philippines.<sup>[56]</sup>

## See also

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- Allied military phonetic spelling alphabets
- APCO radiotelephony spelling alphabet (used by some US police departments)
- International Code of Signals
- Language-specific spelling alphabets
  - Finnish Armed Forces radio alphabet
  - German spelling alphabet
  - Greek spelling alphabet
  - Japanese radiotelephony alphabet
  - Korean spelling alphabet
  - Russian spelling alphabet
  - Swedish Armed Forces radio alphabet
- List of military time zones
- List of NATO country codes
- PGP word list
- Radiotelephony procedure
  - Procedure word
  - Brevity code
    - Ten-code
- Q code
- Spelling alphabet

## Explanatory notes

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1. In print, these code words are commonly capitalized or written in all caps for visual salience (CCEB 2016).
2. This is reinforced by the IMO, which for example has "**TCHAH**-LI" as the French respelling of *Charlie* and "**OSS**-CAH", "**VIK**-TAH" as the English respellings of *Oscar* and *Victor*.
3. Written "nine" in the examples, but pronunciation given as "niner"
4. The ICAO specifies that all syllables in these words are to be equally stressed (§5.2.1.4.3 note), but in practice they are not. The IMO specifies that ZEE-ro and TOU-sand are stressed on their first syllable.
5. With the code words for the digits and decimal, each syllable is stressed equally.
6. Only the second (English) component of each code word is used by the Aeronautical Mobile Service.
7. Each sequence of figures is both preceded and followed by "as a number" (or, for punctuation only) "as a mark", spoken twice.

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