

HP-41 Module

World Countries and Capital Cities



Overview

Like the HP-41 Spanish<>English Dictionary module, this one applies the same "database" concept to the world countries and capital cities. Besides matching capital cities to countries, other functions allow you to:

- Enumerate the countries or cities by Regions (New World, Europe, Rest of the World);
- Access a country or city by its number on the tables, and
- Access the "I'm feeling lucky" random country or city selection.

The included database is quite complete – a total of 196 countries including many city-states and island-countries. Unless you are a full-time geographer there will be many names vaguely known to you, and a few totally rediscovered.

There are three distinct world regions which group all countries (and their capitals). The choices are slightly arbitrary, but this serves the purpose to separate them in more manageable groups. The "New World" basically includes the Americas, Caribbean, Australia/New Zealand and Polynesia. "Europe" includes the European countries and those around the Black Sea. Africa, Middle East and Asia are grouped in the 'Rest of The World" category.

The routines will search the respective table looking for the target in ALPHA, reporting the matching entry on the parallel table. All functions are very intuitive to use, to the point of making this QRG superfluous – but here's the rundown just in case. Note the parallel structure between the Countries and Cities sections:

XROM	Function	Description	Input	Author
30,00	-COUNTRIES	Section Header	n/a	Ángel Martin
30,01	COUNTRY	Finds Country for Capital	City name in ALPHA	Ángel Martin
30,02	NEWORLD	New World Countries	none	Ángel Martin
30,03	EUROPE	European Countries	none	Ángel Martin
30,04	RESTOW	"Rest of the World" Countries	none	Ángel Martin
30,05	ANYLND	Retrieves one country at random	(time from Time Module)	Ángel Martin
30,06	LAND _ _ _	Retrieves a country by its index	Index# in Prompt	Ángel Martin
30,07	"RLIST"	Lists ALL Countries	none	Ángel Martin
30,08	AREV	Utility to Reverse ALPHA strings	Text in ALPHA	Frans de Vries
30,09	-CAPITALS	Section Header	n/a	Ángel Martin
30,10	CAPITAL	Finds Capital for Country	Country Name in ALPHA	Ángel Martin
30,11	AMERY	Enumerates New World Cities	None	Ángel Martin
30,12	EUROY	Enumerates European Cities	None	Ángel Martin
30,13	OTHER	Lists "Rest of World" Cities	None	Ángel Martin
30,14	CITY _ _ _	Retrieves capital by its index	Index# in prompt	Ángel Martin
30,15	ANYCTY	Retrieves capital at random	(time from Time Module)	Ángel Martin
30,16	"LISTAP"	Lists ALL capital cities	none	Ángel Martin
30,17	RNG	Random Number Generator	Time from Time Module	JM Baillard

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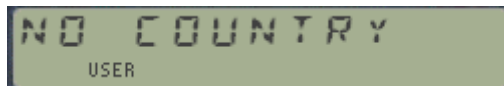
1 –Function Set and Contents.

This module has a very specific functionality on country names and capital city selection, no more - no less. Love it or leave it, but if you take it for a spin make sure you don't miss the enumeration and individual country & city selection functions as described below.

COUNTRY and CAPITAL; Matching Country/City Pairs

Simply write your target country or city in ALPHA (up to 14 characters long) and press the desired function to find the matching city or country respectively . Each function will look into the appropriate table, so make sure you don't mix them up.

If the input is not found in the table an error message is show as follows:



Other possible errors will occur if ALPHA is blank – “**DATA ERROR**”

If the entry is found in the source table but not in the target table: “**NONEXISTENT**”

The result will replace the original word in ALPHA, so you can use the reciprocal function to retrieve the original word in you want to double check the translation.

LAND and CITY; Country/City pickup by index

These prompting functions provide the ability to access any table entry by its storage index in the table. Refer to the appendix for the complete list of entries included in the ROM.

Like it is the case with the other prompting functions, they will take the prompt argument from the X registers if executed as part of a user program. This is shown in the FOCAL programs **RLIST** and **CTLIST** described later on.

ANYLND and ANYCTY; Random pickup of Country/City

You can use these functions when you want to leave the selection to the luck of a draw (aided by the Time Module). Use it to check your knowledge of the word geography, and if you don't happen to know the answer just hit the corresponding reciprocal function to find it out.

The word entry number used is left in the X-Register and the stack is lifted - so you can repeat the word extraction manually.

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Selective Country & City Enumeration

These functions show a sequential enumeration of the entries for a certain type included on the tables. You'll note that the enumeration is alphabetical by country, but not for the Capitals – since the storage order keeps the same sequence on both tables..

The table below shows all the available functions:

Category	New World	Europe	Rest of the World
Cities	AMERY	EUROY	OTHER
Countries	NEWORLD	EUROPE	RESTOW

The Enumeration will proceed until the list is exhausted. You can stop it by pressing any key, which will terminate the function. The tables below list all words included in the module by the particular type and language.

RLIST and CTLIST; Full table listings

This is a sweet and short FOCAL program that lists all words in the corresponding table, following the sequential input order. The enumeration can be halted at each word manually or automatically if you set the system flag 21. See the program listing below, demonstrating the usage of the word pickup functions **LAND** and **CITY**.

Line	Instruction	Line	Instruction
01	LBL "RLIST"	10	LAND
02	SF 00	11	FC? 00
03	GTO 00	12	CITY
04	LBL "CTLIST"	13	PSE
05	CF 00	14	ISG X
06	LBL 00	15	GTO 01
07	1,196	16	BEEP
08	LBL 01	17	END
09	FS? 00	-	--

The tables in next pages shows all words sorted by their actual index (entry number). You can use that as the prompt for functions **LAND** and **CITY** as mentioned previously in the manual.

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Table 1.- European Countries and Capital Cities .

ALBANIA	TIRANA	LITHUANIA	VILNIUS
ANDORRA	LA_VELLA	LUXEMBOURG	LUXEMBOURG
AUSTRIA	VIENNA	MACEDONIA	SKOPJE
BELARUS	MINSK	MALTA	VALLETTA
BELGIUM	BRUSSELS	MOLDOVA	CHISINAU
BOSNIA	SARAJEVO	MONACO	MONACO
BULGARIA	SOFIA	MONTENEGRO	PODGORICA
CROATIA	ZAGREB	NETHERLANDS	AMSTERDAM
CYPRUS	NICOSIA	NORTH_CYPRUS	NICOSIA
CZECH_REP	PRAGUE	NORWAY	OSLO
DENMARK	COPENHAGEN	POLAND	WARSAW
ESTONIA	TALLINN	PORTUGAL	LISBON
FINLAND	HELSINKI	ROMANIA	BUCHAREST
FRANCE	PARIS	RUSSIA	MOSCOW
GEORGIA	TBLISI	SERBIA	BELGRADE
GERMANY	BERLIN	SLOVAKIA	BRATISLAVA
GREECE	ATHENS	SLOVENIA	LIUBLJANA
GREENLAND	NUUK	SAN_MARINO	SAN_MARINO
HUNGARY	BUDAPEST	SPAIN	MADRID
ICELAND	REYKJAVÍK	SWEDEN	STOCKHOLM
IRELAND	DUBLIN	SWITZERLAND	BERN
ITALY	ROME	TURKEY	ANKARA
KOSOVO	PRISTINA	UKRAINE	KIEV
LATVIA	RIGA	UK	LONDON
LIECHTENSTEIN	VADUZ	VATICAN	VATICAN_CITY

Table 2.- New World Countries and Capital Cities

ARGENTINA	BUENOS_AIRES	GUYANA	GEORGETOWN
AUSTRALIA	CANBERRA	HAITI	PORT-AU-PRINCE
BAHAMAS	NASSAU	HONDURAS	TEGUCIGALPA
BARBADOS	BRIDGETOWN	JAMAICA	KINGSTON
BELIZE	BELMOPAN	MEXICO	MEXICO_DF
BERMUDA	HAMILTON	NEW_ZEALAND	WELLINGTON
BOLIVIA	LA_PAZ	NICARAGUA	MANAGUA
BRAZIL	BRASÍLIA	PANAMA	PANAMA_CITY
CANADA	OTTAWA	PAPUA_NEW_GNEA	PORT_MORESBY
CAYMAN ISLANDS	GEORGE_TOWN	PARAGUAY	ASUNCION
CHILE	SANTIAGO	PERU	LIMA
COLOMBIA	BOGOTÁ	PUERTO_RICO	SAN JUAN
COOK_ISLANDS	AVARUA	SAMOA	APIA
COSTA RICA	SAN JOSÉ	SOLOMON_ISLND	HONIARA
CUBA	HAVANA	SURINAME	PARAMARIBO
DOMINICA	ROSEAU	TRINIDAD	PORT_OF_SPAIN
DOMINICAN_REP	SANTO_DOMINGO	TUVALU	FUNAFUTI
ECUADOR	QUITO	USA	WASHINGTON_DC
EL_SALVADOR	SAN_SALVADOR	URUGUAY	MONTEVIDEO
FRENCH_GUIANA	CAYENNE	VANUATU	PORT_VILA
FRCH_POLYNESIA	PAPEETE	VENEZUELA	CARACAS
GUATEMALA	GUATEMALA_CITY	--	--

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Table 3.- Rest of the World Countries & Capital Cities.

AFGHANISTAN	KABUL	LIBYA	TRIPOLI
ALGERIA	ALGIERS	MADAGASCAR	ANTANANARIVO
ANGOLA	LUANDA	MALAWI	LILONGWE
ARMENIA	YEREVAN	MALAYSIA	KUALA_LUMPUR
AZERBAIJAN	BAKU	MALI	BAMAKO
BAHRAIN	MANAMA	MAURITANIA	NOUAKCHOTT
BANGLADESH	DHAKA	MAURITIUS	PORT_LOUIS
BENIN	PORTO-NOVO	MONGOLIA	ULAANBAATAR
BHUTAN	THIMPHU	MOROCCO	RABAT
BOTSWANA	GABORONE	MOZAMBIQUE	MAPUTO
BRUNEI	BANDAR_SERI	MYANMAR	NAYPYIDAW
BURKINA_FASO	OUAGADOUGOU	NAMIBIA	WINDHOEK
BURUNDI	BUJUMBURA	NEPAL	KATHMANDU
CAMBODIA	PHNOM_PENH	NIGER	NIAMEY
CAMEROON	YAOUNDÉ	NIGERIA	ABUJA
CAPE VERDE	PRAIA	NORTH_KOREA	PYONGYANG
CENTRAL_AFR_RP	BANGUI	OMAN	MUSCAT
CHAD	N'DJAMENA	PAKISTAN	ISLAMABAD
CHINA	BEIJING	PALESTINE	JERUSALEM
COMOROS	MORONI	PHILIPPINES	MANILA
CONGO_DEM_REP	BRAZZAVILLE	QATAR	DOHA
CONGO_REP	KINSHASA	RWANDA	KIGALI
DJIBOUTI	DJIBOUTI	SAUDI_ARABIA	RIYADH
EAST_TIMOR	DILI	SENEGAL	DAKAR
EGYPT	CAIRO	SEYCHELLES	VICTORIA
EQUATRL_GUINEA	MALABO	SIERRA_LEONE	FREETOWN
ERITREA	ASMARA	SINGAPORE	SINGAPORE
ETHIOPIA	ADDIS_ABABA	SOMALIA	MOGADISHU
FIJI	SUVA	SOUTH_AFRICA	PRETORIA
GABON	LIBREVILLE	SOUTH_KOREA	SEOUL
GAMBIA	BANJUL	SOUTH_SUDAN	JUBA
GHANA	ACCRA	SRI_LANKA	COLOMBO
GUINEA	CONAKRY	SUDAN	KHARTOUM
GUINEA-BISSAU	BISSAU	SWAZILAND	LOBAMBA
HONG_KONG	HONG_KONG	SYRIA	DAMASCUS
INDIA	NEW DELHI	TAIWAN	TAIPEI
INDONESIA	JAKARTA	TAJIKISTAN	DUSHANBE
IRAN	TEHRAN	THAILAND	BANGKOK
IRAQ	BAGHDAD	TANZANIA	DODOMA
ISRAEL	TEL_AVIV	TOGO	LOMÉ
IVORY_COAST	YAMOUSSOUKRO	TIBET	LHASA
JAPAN	TOKYO	TONGA	NUKU_ALOFA
JORDAN	AMMAN	TUNISIA	TUNIS
KAZAKHSTAN	ASTANA	TURKMENISTAN	ASHGABAT
KENYA	NAIROBI	UGANDA	KAMPALA
KIRIBATI	TARAWA_ATOLL	UAE	ABU_DHABI
KUWAIT	KUWAIT_CITY	UZBEKISTAN	TASHKENT
KYRGYZSTAN	BISHKEK	VIETNAM	HANOI
LAOS	VIENTIANE	YEMEN	SANA'A
LEBANON	BEIRUT	ZAMBIA	LUSAKA
LESOTHO	MASERU	ZIMBABWE	HARARE
LIBERIA	MONROVIA	--	--

2.- Table Layout, Structure & Contents.

Obviously two tables exist, one holding the country names and another with the capital cities names. The table entries are matched on both tables, thus once the word is found in one we apply the same entry number to the other table directly – this expedites the retrieval of the translated word.

To accelerate the search process, there are two auxiliary tables –or word address table, WAT – containing the addresses of the first characters of the words. The Word search algorithm begins by looking for matching first characters and if so a secondary search is made for the rest of the letters to also match those in the target word in ALPHA.

The last character is marked for the algorithm to know the end of the word. It also holds the word-type code, used by the selective enumeration functions - which do not search and therefore access the words tables directly.

A few obvious limitations derived from the HP-41 LCD are:

- No orthographic characters are used in the accented syllables
- An underscore character is used in compound words to replace the blank space.



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Appendix. Table entries by index (for prompting functions).

AFGHANISTAN	1	KABUL	DOMINICAN_REP	51	SANTO_DOMINGO
ALBANIA	2	TIRANA	EAST_TIMOR	52	DILI
ALGERIA	3	ALGIERS	ECUADOR	53	QUITO
ANDORRA	4	LA_VELLA	EGYPT	54	CAIRO
ANGOLA	5	LUANDA	EL_SALVADOR	55	SAN_SALVADOR
ARGENTINA	6	BUENOS_AIRES	EQUATRL_GUINEA	56	MALABO
ARMENIA	7	YEREVAN	ERITREA	57	ASMARA
AUSTRALIA	8	CANBERRA	ESTONIA	58	TALLINN
AUSTRIA	9	VIENNA	ETHIOPIA	59	ADDIS_ABABA
AZERBAIJAN	10	BAKU	FIJI	60	SUVA
BAHAMAS	11	NASSAU	FINLAND	61	HELSINKI
BAHRAIN	12	MANAMA	FRANCE	62	PARIS
BANGLADESH	13	DHAKA	FRENCH_GUIANA	63	CAYENNE
BARBADOS	14	BRIDGETOWN	FRCH_POLYNESIA	64	PAPEETE
BELARUS	15	MINSK	GABON	65	LIBREVILLE
BELGIUM	16	BRUSSELS	GAMBIA	66	BANJUL
BELIZE	17	BELMOPAN	GEORGIA	67	TBLISI
BENIN	18	PORTO-NOVO	GERMANY	68	BERLIN
BERMUDA	19	HAMILTON	GHANA	69	ACCRA
BHUTAN	20	THIMPHU	GREECE	70	ATHENS
BOLIVIA	21	LA_PAZ	GREENLAND	71	NUUK
BOSNIA	22	SARAJEVO	GUATEMALA	72	GUATEMALA_CITY
BOTSWANA	23	GABORONE	GUINEA	73	CONAKRY
BRAZIL	24	BRASÍLIA	GUINEA-BISSAU	74	BISSAU
BRUNEI	25	BANDAR_SERI	GUYANA	75	GEORGETOWN
BULGARIA	26	SOFIA	HAITI	76	PORT-AU-PRINCE
BURKINA_FASO	27	OUAGADOUGOU	HONDURAS	77	TEGUCIGALPA
BURUNDI	28	BUJUMBURA	HONG_KONG	78	HONG_KONG
CAMBODIA	29	PHNOM_PENH	HUNGARY	79	BUDAPEST
CAMEROON	30	YAOUNDÉ	ICELAND	80	REYKJAVÍK
CANADA	31	OTTAWA	INDIA	81	NEW DELHI
CAPE VERDE	32	PRAIA	INDONESIA	82	JAKARTA
CAYMAN ISLANDS	33	GEORGE_TOWN	IRAN	83	TEHRAN
CENTRAL_AFR_RP	34	BANGUI	IRAQ	84	BAGHDAD
CHAD	35	N'DJAMENA	IRELAND	85	DUBLIN
CHILE	36	SANTIAGO	ISRAEL	86	TEL_AVIV
CHINA	37	BEIJING	ITALY	87	ROME
COLOMBIA	38	BOGOTÁ	IVORY_COAST	88	YAMOOUSSOUKRO
COMOROS	39	MORONI	JAMAICA	89	KINGSTON
COOK_ISLANDS	40	AVARUA	JAPAN	90	TOKYO
COSTA RICA	41	SAN JOSÉ	JORDAN	91	AMMAN
CROATIA	42	ZAGREB	KAZAKHSTAN	92	ASTANA
CUBA	43	HAVANA	KENYA	93	NAIROBI
CYPRUS	44	NICOSIA	KIRIBATI	94	TARAWA_ATOLL
CZECH_REP	45	PRAGUE	KOSOVO	95	PRISTINA
CONGO_DEM_REP	46	BRAZZAVILLE	KUWAIT	96	KUWAIT_CITY
CONGO_REP	47	KINSHASA	KYRGYZSTAN	97	BISHKEK
DENMARK	48	COPENHAGEN	LAOS	98	VIENTIANE
DJIBOUTI	49	DJIBOUTI	LATVIA	99	RIGA
DOMINICA	50	ROSEAU	LEBANON	100	BEIRUT

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LESOTHO	101	MASERU	SAN_MARINO	149	SAN_MARINO
LIBERIA	102	MONROVIA	SAUDI_ARABIA	150	RIYADH
LIBYA	103	TRIPOLI	SENEGAL	151	DAKAR
LIECHTENSTEIN	104	VADUZ	SERBIA	152	BELGRADE
LITHUANIA	105	VILNIUS	SEYCHELLES	153	VICTORIA
LUXEMBOURG	106	LUXEMBOURG	SIERRA_LEONE	154	FREETOWN
MACEDONIA	107	SKOPJE	SINGAPORE	155	SINGAPORE
MADAGASCAR	108	ANTANANARIVO	SLOVAKIA	156	BRATISLAVA
MALAWI	109	LILONGWE	SLOVENIA	157	LJUBLJANA
MALAYSIA	110	KUALA_LUMPUR	SOLOMON_ISLND	158	HONIARA
MALI	111	BAMAKO	SOMALIA	159	MOGADISHU
MALTA	112	VALLETTA	SOUTH_AFRICA	160	PRETORIA
MAURITANIA	113	NOUAKCHOTT	SOUTH_KOREA	161	SEOUL
MAURITIUS	114	PORT_LOUIS	SOUTH_SUDAN	162	JUBA
MEXICO	115	MEXICO_DF	SPAIN	163	MADRID
MOLDOVA	116	CHISINAU	SRI_LANKA	164	COLOMBO
MONACO	117	MONACO	SUDAN	165	KHARTOUM
MONGOLIA	118	ULAANBAATAR	SURINAME	166	PARAMARIBO
MONTENEGRO	119	PODGORICA	SWAZILAND	167	LOBAMBA
MOROCCO	120	RABAT	SWEDEN	168	STOCKHOLM
MOZAMBIQUE	121	MAPUTO	SWITZERLAND	169	BERN
MYANMAR	122	NAYPYIDAW	SYRIA	170	DAMASCUS
NAMIBIA	123	WINDHOEK	TAIWAN	171	TAIPEI
NEPAL	124	KATHMANDU	TAJIKISTAN	172	DUSHANBE
NETHERLANDS	125	AMSTERDAM	THAILAND	173	BANGKOK
NEW_ZEALAND	126	WELLINGTON	TANZANIA	174	DODOMA
NICARAGUA	127	MANAGUA	TOGO	175	LOMÉ
NIGER	128	NIAMEY	TIBET	176	LHASA
NIGERIA	129	ABUJA	TONGA	177	NUKU_ALOFA
NORTH_KOREA	130	PYONGYANG	TRINIDAD	178	PORT_OF_SPAIN
NORTH_CYPRUS	131	NICOSIA	TUNISIA	179	TUNIS
NORWAY	132	OSLO	TURKEY	180	ANKARA
OMAN	133	MUSCAT	TURKMENISTAN	181	ASHGABAT
PAKISTAN	134	ISLAMABAD	TUVALU	182	FUNAFUTI
PALESTINE	135	JERUSALEM	UGANDA	183	KAMPALA
PANAMA	136	PANAMA_CITY	UKRAINE	184	KIEV
PAPUA_NEW_GNEA	137	PORT_MORESBY	UAE	185	ABU_DHABI
PARAGUAY	138	ASUNCION	UK	186	LONDON
PERU	139	LIMA	USA	187	WASHINGTON_DC
PHILIPPINES	140	MANILA	URUGUAY	188	MONTEVIDEO
POLAND	141	WARSAW	UZBEKISTAN	189	TASHKENT
PORTUGAL	142	LISBON	VANUATU	190	PORT_VILA
PUERTO_RICO	143	SAN JUAN	VATICAN	191	VATICAN_CITY
QATAR	144	DOHA	VENEZUELA	192	CARACAS
ROMANIA	145	BUCHAREST	VIETNAM	193	HANOI
RUSSIA	146	MOSCOW	YEMEN	194	SANA'A
RWANDA	147	KIGALI	ZAMBIA	195	LUSAKA
SAMOA	148	APIA	ZIMBABWE	196	HARARE