BGP Signaling For AS3320

IP-TRANSIT / IP-TRANSIT LIGHT

Deutsche Telekom Technik GmbH

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Contents

1. Introduction

This document lists the communites used in the BGP protocol of Deutsche Telekom AG and is derived from a machine readable version that is also used in its Router configuration system TROPOS.

Community Names and Representations

Communities are identified by a name that is easier to memorize for humans than numbers and follows a certain structure that gives hints about its meaning.

Communities are always unique by a numeric representation, either in 32 bits or 96 bits or both. These are the actual bit values used in the BGP protocol for exchange between routers. A 32 bit value is necessary for the legacy community feature in BGP (here-in also named *small community*), while the 96 bit value is used in the new *Large Communities* feature (rfc8092).

Such a bit representation is also sometimes called an *encoding*, resp. *small encoding* and *large encoding*. The bit values are written in the standard textual representation as either `XXX:YYY`, where `XXX` and `YYY` are the decimal values of the upper and lower 16 bit words without leading zeroes. Similarly, large encodings follow the pattern `AAAA:BBBB:CCCC` where each part is the decimal encoding of a 32 bit value.

Suport for large encodings is already prepared internally, but not yet available for productive usage.

Community Classes

This description groups supported communities which share the same semantics and differ at most in some specifics. it makes sense to define a *Community Class* for all of these communities and use the common prefix for the internal names of all members of this group.

For example, the small communities `65010:64500` and `65010:64502` both prevent exports of a route, the former to AS64500 peers, the latter to AS64502 ones.
All communities concerned with restricting route export based on various criteria share the same prefix on their internal name (`req.no-export.to.`) and they are described together in one subchapter.

The community class defines its members by specifying how their members are structured, eventually with the help of paramters. For example, see class Region of Import:

```
Small Encoding       "3320:20" region "0"
Parameter Rules      region ::= Type: Region
```

The parameter values may be definied separately as reusable type as seen here and used by several community classes. They also specify their encoding and default values. These types will be listed in the appendix.

2. DTAG Communities

At Deutsche Telekom AG (DTAG) specifically, BGP Communities are used in the following way.

2.1. Signaling Communities

Customer networks connected to Deutsche Telekom's AS3320 Internet backbone with BGP-based routing can signal requests for specific treatment of their routes by setting BGP communities as defined in this chapter.

2.1.1. Restrict Route Propagation

Description

Customer networks may use these communities to restrict propagation of their routes from AS3320 to other Tier-1 providers; please consider using the well-known community NOPEER where appropriate.

The request can be defined by explicitly naming a peer AS to be excluded when exporting. Unfortunately this works only for 16 bit public ASNs.

Note: Applying Tier-1 policy, AS3320 has no upstream. Therefore the community `65010:65001` is sufficient to cover all non-customers.

Examples

Small Encoding	Description	Internal Name
65010:65001	Don't export to peers	req.no-export.to.peer
65010:64500	Don't export to AS64500	req.no-export.to.AS64500

Small Encoding

`"65010:"` (*neighbor* | *targetAS*)

Parameter Rules

targetAS ::= Type: AS

neighbor ::= Type: PeerUpstreamSet

Parameter

neighbor	Small Encoding
Pattern	6500N

2.1.2. Request Announcement

Description

Used to signal a request to DTAG to explicitly re-export a route.

The request can be defined by explicitly naming a peer AS to be included when exporting. Unfortunately this works only for 16 bit public ASNs.

Note: Applying Tier-1 policy, AS3320 has no upstream. Therefore the community `65011:65001` is sufficient to cover all non-customers.

Examples

Small Encoding	Description	Internal Name
65011:65001	Export to any peer	req.announce.to.peer
65011:64500	Export to AS64500	req.announce.to.AS64500

Small Encoding

`"65011:"` (*neighbor* | *targetAS*)

Parameter Rules

targetAS ::= Type: AS

neighbor ::= Type: PeerUpstreamSet

Parameter

neighbor	Small Encoding
Pattern	6500N

2.1.3. AS Path Prepending

Description

AS path prepending is a common way of making routes less attractive (as AS path length is usually one of the BGP path selection criteria). Customer networks may use these communities to selectively request from AS3320 insertion of extra copies of the AS number 3320 when propagating their routes to any of its neighbors.

Extension of the AS path can be requested by one or two extra AS numbers (resulting in AS paths seen by neighbor ASs with two or three times 3320).

The request can be defined by explicitly naming a neighbor AS. Unfortunately this works only for 16 bit public ASNs.

Note: Applying Tier-1 policy, AS3320 has no upstream. Therefore, the communities `65XXX:65001`, `65XXX:65004` and `65XXX:65005` are sufficient to cover combinations of customer and/or non-customer neighbor types.

Examples

Small Encoding	Description	Internal Name
65012:65001	Prepend twice when exporting to peers	req.prepend.to.peer
65012:65004	Prepend twice when exporting to customers	req.prepend.to.customer
65012:64500	Prepend twice when exporting to AS64500	req.prepend.to.AS64500
65013:65001	Prepend 3 times when exporting to peers	req.prepend.to.peer.3x
65013:65004	Prepend 3 times when exporting to customers	req.prepend.to.customer.3x
65013:64500	Prepend 3 times when exporting to AS64500	req.prepend.to.AS64500.3x
65012:65005	Prepend twice when exporting to peers and customers	req.prepend.to.peer+customer
65112:65001	Prepend twice when exporting to peers within EU	req.prepend.in.eu.to.peer
65122:65004	Prepend twice when exporting to customers within North America	req.prepend.in.na.to.customer
65133:64500	Prepend 3 times when exporting to AS64500 within PACRIM	req.prepend.in.pacrim.to.AS64500.3x

Small Encoding `"65"` *region n* `":"` (*neighbors* | *targetAS*)

Parameter Rules

region ::= Type: Region

targetAS ::= Type: AS

neighbors ::= Type: NeighborSet

n ::= "2" | "3"

Parameter

region	Small Encoding
Pattern	1N
Default value	*01*

A parameter value of `01` denotes that the prepending will take place anywhere, i.e. without regional restrictions.

Parameter

neighbors	Small Encoding
Pattern	6500N

Parameter

n	Small Encoding
2	2
3	3
Default value	*2*

2.2. Signaling Communities by Agreement

Customer networks connected to Deutsche Telekom's AS3320 Internet backbone with BGP-based routing can signal requests for specific treatment of their routes by setting BGP communities as defined in this chapter.

Note: Using these communities requires the feature to be explicitely requested and configured via sales contact person or mail to: peering-ops@telekom.de .

2.2.1. Blackholing Service

Description

RTBH enables the signaling of prefixes towards AS3320, that will lead to discarding all traffic to the particular address space within our backbone. Announcement of prefixes up to /32 (IPv4) and /128 (IPv6) is possible in terms of precise selection if traffic towards a range or specific host should be discarded.

Values

Small Encoding	Description	Internal Name
65000:0	Request Blackholing	req.blackhole.standard

2.2.2. Local Preference - Route Priority

Description

Used to signal a request for setting the local preference at DTAG ingress to a particular value.
AS3320 assigns a standard local preference value of 100. There are options to statically set lower or higher priorities.

- *10*, *50* or *70*: The request will be honored if any Local Preference option is configured for the BGP connection.
- *100*: Can be used to explicitly request standard routing priority within AS3320, in case of adjusted presets.
- *150*: Raising priority will be honored only for authorized routes.

Values

Small Encoding	Description	Internal Name
65001:10	Reduce local preference to 10	req.local-pref.10
65001:50	Reduce local preference to 50	req.local-pref.50
65001:70	Reduce local preference to 70	req.local-pref.70
65001:100	Explicitely set local preference to DTAG default	req.local-pref.100
65001:150	Increase local preference to 150	req.local-pref.150

2.3. Informational Communities

Customer networks connected to Deutsche Telekom's AS3320 Internet backbone with BGP-based routing receive routes with additional classification signaled by BGP community attributes as defined in this chapter.

2.3.1. Country of Import

Description

Used to externally signal the country in which DTAG imported a route. These country codes are defined as 'a2' codes in ISO 3166, see appendix (page 18).

Note: Please keep in mind that the region of import does not denote the country of a prefix. It relates to the location where AS3320 has learnt the prefix via BGP.

Examples

Small Encoding	Description	Internal Name
3320:1276	Imported in Germany	tag.origin.country.de
3320:1840	Imported in USA	tag.origin.country.US
3320:1826	Imported in UK	tag.origin.country.gb

Small Encoding

`"3320:1"` *country*

Parameter Rules

country ::= Type: CC

2.3.2. Region of Import

Description

Used to externally signal the region in which DTAG imported a route.

Note: Please keep in mind that the region of import does not necessarily match with the origin of a prefix. It relates to the location where AS3320 has learnt the prefix via BGP.

Examples

Small Encoding	Description	Internal Name
3320:2010	Imported in Europe	tag.origin.region.eu
3320:2020	Imported in North America	tag.origin.region.na
3320:2030	Imported in Pacific Rim	tag.origin.region.pacrim

Small Encoding

`"3320:20"` *region* `"0"`

Parameter Rules

region ::= Type: Region

2.3.3. Origin Type

Description: Used to externally signal the neighbor class of the AS from whom DTAG imported a route.

Examples:

Small Encoding	Description	Internal Name
3320:9010	Imported from customer	tag.origin.type.customer
3320:9020	Imported from peer	tag.origin.type.peer

Small Encoding: `"3320:90" type "0"`

Parameter Rules: type ::= Type: Neighbor

3. IANA Communities

The communities defined by RFCs and and registred at the Internet Assigned Numbers Authority (IANA) are commonly called *well known communities* (WKC).

The official list of defined well known communities is maintained by IANA, and made available at http://www.iana.org/assignments/bgp-well-known-communities.
The WKC GRACEFUL_SHUTDOWN is defined in RFC8326, the community NOPEER is defined in RFC3765.

3.1. Community Classes

3.1.1. Well-Known Communities

Description

The WKC NOPEER is supported by AS3320. Customer networks can use this community to restrict propagation of their route. Use of this community as described in the defining RFC is encouraged.

The WKC GRACEFUL_SHUTDOWN is supported by AS3320. Customer networks can use this community to throttle traffic on BGP connections to be shut down. Use of this community as described in the defining RFC is encouraged.

The 3 WKCs NO_EXPORT, NO_ADVERTISE and NO_EXPORT_SUBCONFED are used internally used within AS3320. Routes tagged with any of them are **not** accepted to avoid potential conflicts.

Values

Small Encoding	Description	Internal Name
65535:0	GRACEFUL_SHUTDOWN	iana:wkc.graceful-shutdown
65535:65281	NO_EXPORT	iana:wkc.no-export
65535:65282	NO_ADVERTISE	iana:wkc.no-advertise
65535:65283	NO_EXPORT_SUBCONFED	iana:wkc.local-as
65535:65284	NOPEER	iana:wkc.no-peer

4. BGP Features Available by Agreement

Deutsche Telekom implements various services and options in its BGP routing (transit services) that are only avaliable upon request. They require an individual agreement and specific configuration on the AS3320 BGP routers.

Using these features requires explicit request via sales contact person or mail to: peering-ops@telekom.de .

4.1. MED

By default, AS3320 accepts and honors MED announced by customer networks.

4.2. Default Route

AS3320 can announce the default route only or additionally to the full BGP table.

4.3. MD5 protection of eBGP sessions

In general, AS3320 expects to negotiate a MD5 key for each neighbor AS to protect all eBGP sessions. AS3320 proposes a MD5 key in each case.

4.4. Maximum Prefix Limit

During provision, AS3320 sets a maximum prefix limit considering the actual analysis of the expected prefix announcements from the customer. Upon request, this limit can be changed by the provisioning team at any time.

If major changes are planned within the customer's network, an early request to raise the prefix limit to a save limit is necessary!

4.5. Loopback Peering

Loopback peering is possible for load sharing over multiple parallel circuits between a single pair of border gateways.

4.6. Multi-Path

Multi-path is possible for load sharing over multiple parallel circuits between a single pair of border gateways.

4.7. LACP

LACP is possible for load sharing over multiple parallel circuits between a single pair of border gateways.

5. Disclaimer

Unless said otherwise, the information provided in this document has been prepared to the best of our knowledge and is for informational purposes only.
Any binding commitments shall be subject to a written agreement.

6. Appendix: Type Definitions

6.1. Complex Types

6.1.1. Type AS

Abstract	An AS number, such as 'AS3320'.
Internal Name	`"AS"` *number*
Description	A unsigned 32 bit number of an Autonomous System as first standardized in RFC 1771 and further defined by RFC 1930 for 16 bit values. Due to the growth of the internet, AS numbers have been extended to 32 bit in RFC 4893. When used in Communities, the small community encodings only allow for the older 16 bit values. Therefore, a community name such as 'req.no-export.to.AS12345678' will only have an encoding as large community, even though the community class is defined for small communities as well.
Used in	Request Announcement (page 6), Restrict Route Propagation (page 5), AS Path Prepending (page 7)

6.1.2. Type Neighbor

Abstract	A type of neighbor.
Internal Name	`( "customer" | "peer" | "upstream" )`
Description	A type of BGP neighbor. The following neighbor types are defined: 'customer', 'peer' and 'upstream'.

Value

Internal Name	Small Encoding
customer	1
peer	2
upstream	3

Used in: Origin Type (page 11)

6.1.3. Type NeighborSet

Abstract	A combination of neighbor types.
Internal Name	*token* [{ "+" *token* }]
Description	A combintation of BGP neighbors. The following neighbor types are defined: 'customer', 'peer' and 'upstream'. Combinations are concatenated with a '+', as in 'peer+customer'.

Value

Internal Name	Small Encoding
peer	1
upstream	2
customer	4
all	7

Used in AS Path Prepending (page 7)

6.1.4. Type PeerUpstreamSet

Abstract	A combination of 'peer' and 'upstream'.
Internal Name	*token* [{ "+" *token* }]
Description	A combintation of BGP neighbors. The following neighbor types are defined: 'customer', 'peer' and 'upstream'. Combinations are concatenated with a '+', as in 'peer+upstream'.

Value

Internal Name	Small Encoding
peer	1
upstream	2
all	7

Used in Request Announcement (page 6), Restrict Route Propagation (page 5)

6.1.5. Type Region

Abstract	A region on the globe.
Internal Name	`("eu" |"na" |"pacrim" )`
Description	A region of the earth. The following regions are defined: eu (Europe), na (North America) and pacrim (Pacific Rim).

Value

Internal Name	Small Encoding
eu	1
na	2
pacrim	3

Used in: AS Path Prepending (page 7), Region of Import (page 10)

6.2. Simple Types

6.2.1. Type CC

Abstract	A 2 letter country code, such as 'UK'.
Description	These country codes are defined as 'a2' codes in ISO 3166. See appendix for the list of country code definitions.
Used in	Country of Import (page 10)

7. Appendix: ISO 3166 Country Codes

Country	A2	A3	Number
Afghanistan	AF	AFG	004
Åland Islands	AX	ALA	248
Albania	AL	ALB	008
Algeria	DZ	DZA	012
American Samoa	AS	ASM	016
Andorra	AD	AND	020
Angola	AO	AGO	024
Anguilla	AI	AIA	660
Antarctica	AQ	ATA	010
Antigua and Barbuda	AG	ATG	028
Argentina	AR	ARG	032
Armenia	AM	ARM	051
Aruba	AW	ABW	533
Australia	AU	AUS	036
Austria	AT	AUT	040
Azerbaijan	AZ	AZE	031
Bahamas (the)	BS	BHS	044
Bahrain	BH	BHR	048
Bangladesh	BD	BGD	050
Barbados	BB	BRB	052
Belarus	BY	BLR	112
Belgium	BE	BEL	056
Belize	BZ	BLZ	084
Benin	BJ	BEN	204
Bermuda	BM	BMU	060
Bhutan	BT	BTN	064
Bolivia (Plurinational State of)	BO	BOL	068
Bonaire, Sint Eustatius and Saba	BQ	BES	535
Bosnia and Herzegovina	BA	BIH	070
Botswana	BW	BWA	072
Bouvet Island	BV	BVT	074

Country	A2	A3	Number
Brazil	BR	BRA	076
British Indian Ocean Territory (the)	IO	IOT	086
Brunei Darussalam	BN	BRN	096
Bulgaria	BG	BGR	100
Burkina Faso	BF	BFA	854
Burundi	BI	BDI	108
Cabo Verde	CV	CPV	132
Cambodia	KH	KHM	116
Cameroon	CM	CMR	120
Canada	CA	CAN	124
Cayman Islands (the)	KY	CYM	136
Central African Republic (the)	CF	CAF	140
Chad	TD	TCD	148
Chile	CL	CHL	152
China	CN	CHN	156
Christmas Island	CX	CXR	162
Cocos (Keeling) Islands (the)	CC	CCK	166
Colombia	CO	COL	170
Comoros (the)	KM	COM	174
Congo (the Democratic Republic of the)	CD	COD	180
Congo (the)	CG	COG	178
Cook Islands (the)	CK	COK	184
Costa Rica	CR	CRI	188
Côte d'Ivoire	CI	CIV	384
Croatia	HR	HRV	191
Cuba	CU	CUB	192
Curaçao	CW	CUW	531
Cyprus	CY	CYP	196
Czechia	CZ	CZE	203
Denmark	DK	DNK	208
Djibouti	DJ	DJI	262
Dominica	DM	DMA	212
Dominican Republic (the)	DO	DOM	214

Country	A2	A3	Number
Ecuador	EC	ECU	218
Egypt	EG	EGY	818
El Salvador	SV	SLV	222
Equatorial Guinea	GQ	GNQ	226
Eritrea	ER	ERI	232
Estonia	EE	EST	233
Ethiopia	ET	ETH	231
Falkland Islands (the) [Malvinas]	FK	FLK	238
Faroe Islands (the)	FO	FRO	234
Fiji	FJ	FJI	242
Finland	FI	FIN	246
France	FR	FRA	250
French Guiana	GF	GUF	254
French Polynesia	PF	PYF	258
French Southern Territories (the)	TF	ATF	260
Gabon	GA	GAB	266
Gambia (the)	GM	GMB	270
Georgia	GE	GEO	268
Germany	DE	DEU	276
Ghana	GH	GHA	288
Gibraltar	GI	GIB	292
Greece	GR	GRC	300
Greenland	GL	GRL	304
Grenada	GD	GRD	308
Guadeloupe	GP	GLP	312
Guam	GU	GUM	316
Guatemala	GT	GTM	320
Guernsey	GG	GGY	831
Guinea	GN	GIN	324
Guinea-Bissau	GW	GNB	624
Guyana	GY	GUY	328
Haiti	HT	HTI	332
Heard Island and McDonald Islands	HM	HMD	334

Country	A2	A3	Number
Holy See (the)	VA	VAT	336
Honduras	HN	HND	340
Hong Kong	HK	HKG	344
Hungary	HU	HUN	348
Iceland	IS	ISL	352
India	IN	IND	356
Indonesia	ID	IDN	360
Iran (Islamic Republic of)	IR	IRN	364
Iraq	IQ	IRQ	368
Ireland	IE	IRL	372
Isle of Man	IM	IMN	833
Israel	IL	ISR	376
Italy	IT	ITA	380
Jamaica	JM	JAM	388
Japan	JP	JPN	392
Jersey	JE	JEY	832
Jordan	JO	JOR	400
Kazakhstan	KZ	KAZ	398
Kenya	KE	KEN	404
Kiribati	KI	KIR	296
Korea (the Democratic People's Republic of)	KP	PRK	408
Korea (the Republic of)	KR	KOR	410
Kuwait	KW	KWT	414
Kyrgyzstan	KG	KGZ	417
Lao People's Democratic Republic (the)	LA	LAO	418
Latvia	LV	LVA	428
Lebanon	LB	LBN	422
Lesotho	LS	LSO	426
Liberia	LR	LBR	430
Libya	LY	LBY	434
Liechtenstein	LI	LIE	438
Lithuania	LT	LTU	440
Luxembourg	LU	LUX	442

Country	A2	A3	Number
Macao	MO	MAC	446
Macedonia (the former Yugoslav Republic of)	MK	MKD	807
Madagascar	MG	MDG	450
Malawi	MW	MWI	454
Malaysia	MY	MYS	458
Maldives	MV	MDV	462
Mali	ML	MLI	466
Malta	MT	MLT	470
Marshall Islands (the)	MH	MHL	584
Martinique	MQ	MTQ	474
Mauritania	MR	MRT	478
Mauritius	MU	MUS	480
Mayotte	YT	MYT	175
Mexico	MX	MEX	484
Micronesia (Federated States of)	FM	FSM	583
Moldova (the Republic of)	MD	MDA	498
Monaco	MC	MCO	492
Mongolia	MN	MNG	496
Montenegro	ME	MNE	499
Montserrat	MS	MSR	500
Morocco	MA	MAR	504
Mozambique	MZ	MOZ	508
Myanmar	MM	MMR	104
Namibia	NA	NAM	516
Nauru	NR	NRU	520
Nepal	NP	NPL	524
Netherlands (the)	NL	NLD	528
New Caledonia	NC	NCL	540
New Zealand	NZ	NZL	554
Nicaragua	NI	NIC	558
Niger (the)	NE	NER	562
Nigeria	NG	NGA	566
Niue	NU	NIU	570

Country	A2	A3	Number
Norfolk Island	NF	NFK	574
Northern Mariana Islands (the)	MP	MNP	580
Norway	NO	NOR	578
Oman	OM	OMN	512
Pakistan	PK	PAK	586
Palau	PW	PLW	585
Palestine, State of	PS	PSE	275
Panama	PA	PAN	591
Papua New Guinea	PG	PNG	598
Paraguay	PY	PRY	600
Peru	PE	PER	604
Philippines (the)	PH	PHL	608
Pitcairn	PN	PCN	612
Poland	PL	POL	616
Portugal	PT	PRT	620
Puerto Rico	PR	PRI	630
Qatar	QA	QAT	634
Réunion	RE	REU	638
Romania	RO	ROU	642
Russian Federation (the)	RU	RUS	643
Rwanda	RW	RWA	646
Saint Barthélemy	BL	BLM	652
Saint Helena, Ascension and Tristan da Cunha	SH	SHN	654
Saint Kitts and Nevis	KN	KNA	659
Saint Lucia	LC	LCA	662
Saint Martin (French part)	MF	MAF	663
Saint Pierre and Miquelon	PM	SPM	666
Saint Vincent and the Grenadines	VC	VCT	670
Samoa	WS	WSM	882
San Marino	SM	SMR	674
Sao Tome and Principe	ST	STP	678
Saudi Arabia	SA	SAU	682
Senegal	SN	SEN	686

Country	A2	A3	Number
Serbia	RS	SRB	688
Seychelles	SC	SYC	690
Sierra Leone	SL	SLE	694
Singapore	SG	SGP	702
Sint Maarten (Dutch part)	SX	SXM	534
Slovakia	SK	SVK	703
Slovenia	SI	SVN	705
Solomon Islands	SB	SLB	090
Somalia	SO	SOM	706
South Africa	ZA	ZAF	710
South Georgia and the South Sandwich Islands	GS	SGS	239
South Sudan	SS	SSD	728
Spain	ES	ESP	724
Sri Lanka	LK	LKA	144
Sudan (the)	SD	SDN	729
Suriname	SR	SUR	740
Svalbard and Jan Mayen	SJ	SJM	744
Swaziland	SZ	SWZ	748
Sweden	SE	SWE	752
Switzerland	CH	CHE	756
Syrian Arab Republic	SY	SYR	760
Taiwan (Province of China)	TW	TWN	158
Tajikistan	TJ	TJK	762
Tanzania, United Republic of	TZ	TZA	834
Thailand	TH	THA	764
Timor-Leste	TL	TLS	626
Togo	TG	TGO	768
Tokelau	TK	TKL	772
Tonga	TO	TON	776
Trinidad and Tobago	TT	TTO	780
Tunisia	TN	TUN	788
Turkey	TR	TUR	792
Turkmenistan	TM	TKM	795

Country	A2	A3	Number
Turks and Caicos Islands (the)	TC	TCA	796
Tuvalu	TV	TUV	798
Uganda	UG	UGA	800
Ukraine	UA	UKR	804
United Arab Emirates (the)	AE	ARE	784
United Kingdom of Great Britain and Northern Ireland (the)	UK	GBR	826
United Kingdom of Great Britain and Northern Ireland (the)	GB	GBR	826
United States Minor Outlying Islands (the)	UM	UMI	581
United States of America (the)	US	USA	840
Uruguay	UY	URY	858
Uzbekistan	UZ	UZB	860
Vanuatu	VU	VUT	548
Venezuela (Bolivarian Republic of)	VE	VEN	862
Viet Nam	VN	VNM	704
Virgin Islands (British)	VG	VGB	092
Virgin Islands (U.S.)	VI	VIR	850
Wallis and Futuna	WF	WLF	876
Western Sahara*	EH	ESH	732
Yemen	YE	YEM	887
Zambia	ZM	ZMB	894
Zimbabwe	ZW	ZWE	716