

RPKI Engine

1.0

Generated by Doxygen 1.5.6

Tue Jul 15 19:00:15 2008

Contents

1 RPKI Engine Reference Manual	1
2 Namespace Documentation	2
2.1 Package cross_certify	2
2.1.1 Detailed Description	3
2.1.2 Function Documentation	3
2.1.3 Variable Documentation	3
2.2 Package irbe_cli	4
2.2.1 Detailed Description	6
2.2.2 Function Documentation	6
2.2.3 Variable Documentation	6
2.3 Package irdbd	8
2.3.1 Detailed Description	8
2.3.2 Function Documentation	9
2.3.3 Variable Documentation	9
2.4 Package pubd	11
2.4.1 Detailed Description	11
2.4.2 Function Documentation	11
2.4.3 Variable Documentation	12
2.5 Package rootd	12
2.5.1 Detailed Description	13
2.5.2 Function Documentation	13
2.5.3 Variable Documentation	14
2.6 Package rpki	17
2.7 Package rpki.config	17
2.7.1 Detailed Description	17
2.8 Package rpki.exceptions	18
2.8.1 Detailed Description	19
2.9 Package rpki.https	19
2.9.1 Detailed Description	19

2.9.2	Function Documentation	20
2.9.3	Variable Documentation	21
2.10	Package rpki.ipaddrs	21
2.10.1	Detailed Description	21
2.11	Package rpki.left_right	22
2.11.1	Detailed Description	22
2.11.2	Variable Documentation	23
2.12	Package rpki.log	23
2.12.1	Detailed Description	23
2.12.2	Function Documentation	24
2.12.3	Variable Documentation	24
2.13	Package rpki.manifest	25
2.13.1	Detailed Description	25
2.14	Package rpki.oids	26
2.14.1	Detailed Description	26
2.14.2	Variable Documentation	26
2.15	Package rpki.publication	27
2.15.1	Detailed Description	28
2.15.2	Variable Documentation	28
2.16	Package rpki.relaxng	28
2.16.1	Variable Documentation	29
2.17	Package rpki.resource_set	29
2.17.1	Detailed Description	30
2.17.2	Function Documentation	30
2.17.3	Variable Documentation	31
2.18	Package rpki.roa	31
2.18.1	Detailed Description	32
2.19	Package rpki.rpki_engine	32
2.19.1	Detailed Description	33
2.20	Package rpki.sql	33
2.20.1	Detailed Description	33

2.21	Package rpki.sundial	34
2.21.1	Detailed Description	34
2.21.2	Function Documentation	34
2.22	Package rpki.up_down	35
2.22.1	Detailed Description	35
2.22.2	Variable Documentation	36
2.23	Package rpki.x509	36
2.23.1	Detailed Description	36
2.23.2	Function Documentation	37
2.24	Package rpki.xml_utils	37
2.24.1	Detailed Description	37
2.25	Package rpkid	38
2.25.1	Detailed Description	38
2.25.2	Function Documentation	39
2.25.3	Variable Documentation	39
3	Class Documentation	39
3.1	BaseHTTPRequestHandler Class Reference	39
3.2	HTTPServer Class Reference	40
3.3	RawConfigParser Class Reference	40
3.4	Exception Class Reference	41
3.5	irbe_cli.bsc_elt Class Reference	43
3.5.1	Detailed Description	44
3.5.2	Member Function Documentation	44
3.5.3	Member Data Documentation	45
3.6	irbe_cli.certificate_elt Class Reference	47
3.6.1	Detailed Description	48
3.7	irbe_cli.child_elt Class Reference	50
3.7.1	Detailed Description	51
3.8	irbe_cli.client_elt Class Reference	53
3.8.1	Detailed Description	54

3.9	irbe_cli.cmd_elt_mixin Class Reference	54
3.9.1	Detailed Description	55
3.9.2	Member Function Documentation	55
3.9.3	Member Data Documentation	56
3.10	irbe_cli.cmd_msg_mixin Class Reference	58
3.10.1	Detailed Description	58
3.10.2	Member Function Documentation	58
3.11	irbe_cli.config_elt Class Reference	60
3.11.1	Detailed Description	61
3.11.2	Member Function Documentation	61
3.11.3	Member Data Documentation	61
3.12	irbe_cli.crl_elt Class Reference	63
3.12.1	Detailed Description	64
3.13	irbe_cli.left_right_cms_msg Class Reference	65
3.13.1	Detailed Description	66
3.13.2	Member Data Documentation	66
3.14	irbe_cli.left_right_msg Class Reference	67
3.14.1	Detailed Description	68
3.14.2	Member Data Documentation	68
3.15	irbe_cli.left_right_sax_handler Class Reference	69
3.15.1	Detailed Description	70
3.15.2	Member Data Documentation	70
3.16	irbe_cli.manifest_elt Class Reference	72
3.16.1	Detailed Description	73
3.17	irbe_cli.parent_elt Class Reference	75
3.17.1	Detailed Description	76
3.18	irbe_cli.publication_cms_msg Class Reference	77
3.18.1	Detailed Description	78
3.18.2	Member Data Documentation	78
3.19	irbe_cli.publication_msg Class Reference	79
3.19.1	Detailed Description	80

3.19.2 Member Data Documentation	80
3.20 irbe_cli.publication_sax_handler Class Reference	81
3.20.1 Detailed Description	82
3.20.2 Member Data Documentation	82
3.21 irbe_cli.repository_elt Class Reference	84
3.21.1 Detailed Description	85
3.22 irbe_cli.roa_elt Class Reference	87
3.22.1 Detailed Description	88
3.23 irbe_cli.route_origin_elt Class Reference	90
3.23.1 Detailed Description	91
3.23.2 Member Function Documentation	91
3.23.3 Member Data Documentation	91
3.24 irbe_cli.self_elt Class Reference	94
3.24.1 Detailed Description	95
3.25 irbe_cli.UsageWrapper Class Reference	95
3.25.1 Detailed Description	95
3.25.2 Member Function Documentation	95
3.26 list Class Reference	96
3.27 long Class Reference	96
3.28 object Class Reference	97
3.29 pubd.pubd_context Class Reference	97
3.29.1 Detailed Description	98
3.29.2 Member Function Documentation	98
3.29.3 Member Data Documentation	99
3.30 datetime Class Reference	101
3.31 timedelta Class Reference	101
3.32 rootd.cms_msg Class Reference	102
3.32.1 Detailed Description	103
3.32.2 Member Data Documentation	103
3.33 rootd.issue_pdu Class Reference	104
3.33.1 Detailed Description	105

3.33.2 Member Function Documentation	105
3.34 roott.list_pdu Class Reference	106
3.34.1 Detailed Description	107
3.34.2 Member Function Documentation	107
3.35 roott.message_pdu Class Reference	108
3.35.1 Detailed Description	109
3.35.2 Member Data Documentation	109
3.36 roott.revoke_pdu Class Reference	110
3.36.1 Detailed Description	111
3.36.2 Member Function Documentation	111
3.37 roott.sax_handler Class Reference	112
3.37.1 Detailed Description	113
3.37.2 Member Data Documentation	113
3.38 rpki.config.parser Class Reference	113
3.38.1 Detailed Description	113
3.38.2 Member Function Documentation	114
3.38.3 Member Data Documentation	114
3.39 rpki.exceptions.BadClassNameSyntax Class Reference	115
3.39.1 Detailed Description	115
3.40 rpki.exceptions.BadContactURL Class Reference	116
3.40.1 Detailed Description	116
3.41 rpki.exceptions.BadIRDBReply Class Reference	117
3.41.1 Detailed Description	117
3.42 rpki.exceptions.BadIssueResponse Class Reference	118
3.42.1 Detailed Description	118
3.43 rpki.exceptions.BadPKCS10 Class Reference	119
3.43.1 Detailed Description	119
3.44 rpki.exceptions.BadQuery Class Reference	120
3.44.1 Detailed Description	120
3.45 rpki.exceptions.BadSender Class Reference	121
3.45.1 Detailed Description	121

3.46 rpkி.exceptions.BadStatusCode Class Reference	122
3.46.1 Detailed Description	122
3.47 rpkி.exceptions.BadURISyntax Class Reference	123
3.47.1 Detailed Description	123
3.48 rpkி.exceptions.BSCNotFound Class Reference	124
3.48.1 Detailed Description	124
3.49 rpkி.exceptions.ChildNotFound Class Reference	125
3.49.1 Detailed Description	125
3.50 rpkி.exceptions.ClassNameMismatch Class Reference	126
3.50.1 Detailed Description	126
3.51 rpkி.exceptions.CMSCRLNotSet Class Reference	127
3.51.1 Detailed Description	127
3.52 rpkி.exceptions.CMSVerificationFailed Class Reference	128
3.52.1 Detailed Description	128
3.53 rpkி.exceptions.DBConsistencyError Class Reference	129
3.53.1 Detailed Description	129
3.54 rpkி.exceptions.DEROBJECTConversionError Class Reference	130
3.54.1 Detailed Description	130
3.55 rpkĭ.exceptions.EmptyPEM Class Reference	131
3.55.1 Detailed Description	131
3.56 rpkĭ.exceptions.HTTPRequestFailed Class Reference	132
3.56.1 Detailed Description	132
3.57 rpkĭ.exceptions.MissingCMSCRL Class Reference	133
3.57.1 Detailed Description	133
3.58 rpkĭ.exceptions.MissingCMSEcert Class Reference	134
3.58.1 Detailed Description	134
3.59 rpkĭ.exceptions.MultipleTLSEECert Class Reference	135
3.59.1 Detailed Description	135
3.60 rpkĭ.exceptions.MustBePrefix Class Reference	136
3.60.1 Detailed Description	136
3.61 rpkĭ.exceptions.NotACertificateChain Class Reference	137

3.61.1	Detailed Description	137
3.62	rpkி.exceptions.NotFound Class Reference	138
3.62.1	Detailed Description	138
3.63	rpkி.exceptions.NotImplementedYet Class Reference	139
3.63.1	Detailed Description	139
3.64	rpkி.exceptions.NotInDatabase Class Reference	140
3.64.1	Detailed Description	140
3.65	rpkி.exceptions.ReceivedTLSCACert Class Reference	141
3.65.1	Detailed Description	141
3.66	rpkி.exceptions.RPKI_Exception Class Reference	141
3.66.1	Detailed Description	141
3.67	rpkி.exceptions.ServerShuttingDown Class Reference	142
3.67.1	Detailed Description	142
3.68	rpkி.exceptions.SKIMismatch Class Reference	143
3.68.1	Detailed Description	143
3.69	rpkி.exceptions.SubprocessError Class Reference	144
3.69.1	Detailed Description	144
3.70	rpkி.exceptions.TLSValidationError Class Reference	145
3.70.1	Detailed Description	145
3.71	rpkி.exceptions.UnexpectedCMSCerts Class Reference	146
3.71.1	Detailed Description	146
3.72	rpkி.exceptions.UnexpectedCMSCRLs Class Reference	147
3.72.1	Detailed Description	147
3.73	rpkி.exceptions.UnparsableCMSDER Class Reference	148
3.73.1	Detailed Description	148
3.74	rpkி.exceptions.UpstreamError Class Reference	149
3.74.1	Detailed Description	149
3.75	rpkி.exceptions.WrongEContentType Class Reference	150
3.75.1	Detailed Description	150
3.76	rpkி.https.Checker Class Reference	150
3.76.1	Detailed Description	151

3.76.2 Member Function Documentation	151
3.76.3 Member Data Documentation	152
3.77 rpki.https.httpsClient Class Reference	152
3.77.1 Detailed Description	153
3.77.2 Member Function Documentation	153
3.77.3 Member Data Documentation	153
3.78 rpki.https.httpsServer Class Reference	154
3.78.1 Detailed Description	154
3.78.2 Member Function Documentation	154
3.78.3 Member Data Documentation	155
3.79 rpki.https.requestHandler Class Reference	155
3.79.1 Detailed Description	156
3.79.2 Member Function Documentation	156
3.79.3 Member Data Documentation	156
3.80 rpki.ipaddrs.v4addr Class Reference	157
3.80.1 Detailed Description	157
3.80.2 Member Function Documentation	157
3.80.3 Member Data Documentation	158
3.81 rpki.ipaddrs.v6addr Class Reference	158
3.81.1 Detailed Description	159
3.81.2 Member Function Documentation	159
3.81.3 Member Data Documentation	159
3.82 rpki.left_right.bsc_elt Class Reference	161
3.82.1 Detailed Description	162
3.82.2 Member Function Documentation	162
3.82.3 Member Data Documentation	163
3.83 rpki.left_right.child_elt Class Reference	166
3.83.1 Detailed Description	167
3.83.2 Member Function Documentation	167
3.83.3 Member Data Documentation	168
3.84 rpki.left_right.cms_msg Class Reference	170

3.84.1	Detailed Description	171
3.84.2	Member Data Documentation	171
3.85	rpk.left_right.data_elt Class Reference	173
3.85.1	Detailed Description	174
3.85.2	Member Function Documentation	174
3.86	rpk.left_right.left_right_namespace Class Reference	176
3.86.1	Detailed Description	176
3.86.2	Member Data Documentation	177
3.87	rpk.left_right.list_resources_elt Class Reference	178
3.87.1	Detailed Description	179
3.87.2	Member Function Documentation	179
3.87.3	Member Data Documentation	180
3.88	rpk.left_right.msg Class Reference	181
3.88.1	Detailed Description	182
3.88.2	Member Function Documentation	182
3.88.3	Member Data Documentation	182
3.89	rpk.left_right.parent_elt Class Reference	185
3.89.1	Detailed Description	186
3.89.2	Member Function Documentation	186
3.89.3	Member Data Documentation	188
3.90	rpk.left_right.report_error_elt Class Reference	190
3.90.1	Detailed Description	191
3.90.2	Member Function Documentation	191
3.90.3	Member Data Documentation	191
3.91	rpk.left_right.repository_elt Class Reference	194
3.91.1	Detailed Description	195
3.91.2	Member Function Documentation	195
3.91.3	Member Data Documentation	196
3.92	rpk.left_right.route_origin_elt Class Reference	199
3.92.1	Detailed Description	201
3.92.2	Member Function Documentation	201

3.92.3 Member Data Documentation	203
3.93 rpkি.left_right.sax_handler Class Reference	206
3.93.1 Detailed Description	207
3.93.2 Member Data Documentation	207
3.94 rpkি.left_right.self_elt Class Reference	209
3.94.1 Detailed Description	210
3.94.2 Member Function Documentation	211
3.94.3 Member Data Documentation	213
3.95 rpkি.log.logger Class Reference	215
3.95.1 Detailed Description	215
3.95.2 Member Function Documentation	215
3.95.3 Member Data Documentation	216
3.96 rpkি.manifest.FileAndHash Class Reference	216
3.96.1 Detailed Description	216
3.96.2 Member Function Documentation	216
3.96.3 Member Data Documentation	217
3.97 rpkি.manifest.FilesAndHashes Class Reference	217
3.97.1 Detailed Description	217
3.97.2 Member Function Documentation	217
3.98 rpkি.manifest.Manifest Class Reference	218
3.98.1 Detailed Description	218
3.98.2 Member Function Documentation	218
3.98.3 Member Data Documentation	219
3.99 rpkি.publication.certificate_elt Class Reference	220
3.99.1 Detailed Description	221
3.99.2 Member Data Documentation	221
3.100 rpkি.publication.client_elt Class Reference	223
3.100.1 Detailed Description	224
3.100.2 Member Function Documentation	224
3.100.3 Member Data Documentation	225
3.101 rpkি.publication.cms_msg Class Reference	227

3.101.1 Detailed Description	228
3.101.2 Member Data Documentation	228
3.102rpki.publication.config_elt Class Reference	230
3.102.1 Detailed Description	231
3.102.2 Member Function Documentation	231
3.102.3 Member Data Documentation	232
3.103rpki.publication.control_elt Class Reference	235
3.103.1 Detailed Description	236
3.103.2 Member Function Documentation	236
3.104rpki.publication.crl_elt Class Reference	237
3.104.1 Detailed Description	238
3.104.2 Member Data Documentation	238
3.105rpki.publication.manifest_elt Class Reference	239
3.105.1 Detailed Description	240
3.105.2 Member Data Documentation	240
3.106rpki.publication.msg Class Reference	241
3.106.1 Detailed Description	242
3.106.2 Member Function Documentation	242
3.106.3 Member Data Documentation	242
3.107rpki.publication.publication_namespace Class Reference	243
3.107.1 Detailed Description	243
3.107.2 Member Data Documentation	244
3.108rpki.publication.publication_object_elt Class Reference	245
3.108.1 Detailed Description	246
3.108.2 Member Function Documentation	246
3.108.3 Member Data Documentation	247
3.109rpki.publication.report_error_elt Class Reference	248
3.109.1 Detailed Description	249
3.109.2 Member Function Documentation	249
3.109.3 Member Data Documentation	249
3.110rpki.publication.roa_elt Class Reference	250

3.110.1 Detailed Description	251
3.110.2 Member Data Documentation	251
3.111rpki.publication.sax_handler Class Reference	252
3.111.1 Detailed Description	253
3.111.2 Member Data Documentation	253
3.112rpki.resource_set.resource_bag Class Reference	254
3.112.1 Detailed Description	255
3.112.2 Member Function Documentation	255
3.112.3 Member Data Documentation	256
3.113rpki.resource_set.resource_range Class Reference	257
3.113.1 Detailed Description	258
3.113.2 Member Function Documentation	258
3.113.3 Member Data Documentation	258
3.114rpki.resource_set.resource_range_as Class Reference	259
3.114.1 Detailed Description	260
3.114.2 Member Function Documentation	260
3.114.3 Member Data Documentation	260
3.115rpki.resource_set.resource_range_ip Class Reference	261
3.115.1 Detailed Description	262
3.115.2 Member Function Documentation	262
3.116rpki.resource_set.resource_range_ipv4 Class Reference	263
3.116.1 Detailed Description	264
3.116.2 Member Data Documentation	264
3.117rpki.resource_set.resource_range_ipv6 Class Reference	265
3.117.1 Detailed Description	266
3.117.2 Member Data Documentation	266
3.118rpki.resource_set.resource_set Class Reference	267
3.118.1 Detailed Description	268
3.118.2 Member Function Documentation	268
3.118.3 Member Data Documentation	270
3.119rpki.resource_set.resource_set_as Class Reference	271

3.119.1 Detailed Description	272
3.119.2 Member Function Documentation	272
3.119.3 Member Data Documentation	273
3.120rpki.resource_set.resource_set_ip Class Reference	275
3.120.1 Detailed Description	276
3.120.2 Member Function Documentation	276
3.120.3 Member Data Documentation	277
3.121rpki.resource_set.resource_set_ipv4 Class Reference	278
3.121.1 Detailed Description	279
3.121.2 Member Data Documentation	279
3.122rpki.resource_set.resource_set_ipv6 Class Reference	280
3.122.1 Detailed Description	281
3.122.2 Member Data Documentation	281
3.123rpki.resource_set.roa_prefix Class Reference	282
3.123.1 Detailed Description	283
3.123.2 Member Function Documentation	283
3.123.3 Member Data Documentation	284
3.124rpki.resource_set.roa_prefix_ipv4 Class Reference	285
3.124.1 Detailed Description	285
3.124.2 Member Data Documentation	285
3.125rpki.resource_set.roa_prefix_ipv6 Class Reference	286
3.125.1 Detailed Description	286
3.125.2 Member Data Documentation	287
3.126rpki.resource_set.roa_prefix_set Class Reference	287
3.126.1 Detailed Description	288
3.126.2 Member Function Documentation	288
3.127rpki.resource_set.roa_prefix_set_ipv4 Class Reference	289
3.127.1 Detailed Description	290
3.127.2 Member Data Documentation	290
3.128rpki.resource_set.roa_prefix_set_ipv6 Class Reference	291
3.128.1 Detailed Description	291

3.128.2 Member Data Documentation	291
3.129rpki.roa.ROAIPAddress Class Reference	292
3.129.1 Detailed Description	292
3.129.2 Member Function Documentation	292
3.129.3 Member Data Documentation	293
3.130rpki.roa.ROAIPAddresses Class Reference	293
3.130.1 Detailed Description	293
3.130.2 Member Function Documentation	293
3.131rpki.roa.ROAIPAddressFamilies Class Reference	294
3.131.1 Detailed Description	294
3.131.2 Member Function Documentation	294
3.132rpki.roa.ROAIPAddressFamily Class Reference	295
3.132.1 Detailed Description	295
3.132.2 Member Function Documentation	295
3.132.3 Member Data Documentation	295
3.133rpki.roa.RouteOriginAttestation Class Reference	296
3.133.1 Detailed Description	296
3.133.2 Member Function Documentation	296
3.133.3 Member Data Documentation	297
3.134rpki.rpki_engine.ca_detail_obj Class Reference	298
3.134.1 Detailed Description	299
3.134.2 Member Function Documentation	300
3.134.3 Member Data Documentation	303
3.135rpki.rpki_engine.ca_obj Class Reference	305
3.135.1 Detailed Description	306
3.135.2 Member Function Documentation	306
3.135.3 Member Data Documentation	309
3.136rpki.rpki_engine.child_cert_obj Class Reference	311
3.136.1 Detailed Description	312
3.136.2 Member Function Documentation	312
3.136.3 Member Data Documentation	313

3.137rpki.rpki_engine.revoked_cert_obj Class Reference	315
3.137.1 Detailed Description	316
3.137.2 Member Function Documentation	316
3.137.3 Member Data Documentation	317
3.138rpki.rpki_engine.rpkid_context Class Reference	318
3.138.1 Detailed Description	319
3.138.2 Member Function Documentation	319
3.138.3 Member Data Documentation	320
3.139rpki.sql.session Class Reference	322
3.139.1 Detailed Description	323
3.139.2 Member Function Documentation	323
3.139.3 Member Data Documentation	325
3.140rpki.sql.sql_persistent Class Reference	326
3.140.1 Detailed Description	327
3.140.2 Member Function Documentation	327
3.140.3 Member Data Documentation	330
3.141rpki.sql.template Class Reference	331
3.141.1 Detailed Description	332
3.141.2 Member Function Documentation	332
3.141.3 Member Data Documentation	332
3.142rpki.sundial.datetime Class Reference	333
3.142.1 Detailed Description	334
3.142.2 Member Function Documentation	334
3.142.3 Member Data Documentation	337
3.143rpki.sundial.timedelta Class Reference	337
3.143.1 Detailed Description	338
3.143.2 Member Function Documentation	338
3.143.3 Member Data Documentation	338
3.144rpki.up_down.base_elt Class Reference	339
3.144.1 Detailed Description	339
3.144.2 Member Function Documentation	340

3.145rpki.up_down.certificate_elt Class Reference	342
3.145.1 Detailed Description	343
3.145.2 Member Function Documentation	343
3.145.3 Member Data Documentation	343
3.146rpki.up_down.class_elt Class Reference	345
3.146.1 Detailed Description	346
3.146.2 Member Function Documentation	346
3.146.3 Member Data Documentation	347
3.147rpki.up_down.class_response_syntax Class Reference	349
3.147.1 Detailed Description	350
3.147.2 Member Function Documentation	350
3.147.3 Member Data Documentation	350
3.148rpki.up_down.cms_msg Class Reference	351
3.148.1 Detailed Description	352
3.148.2 Member Data Documentation	352
3.149rpki.up_down.error_response_pdu Class Reference	353
3.149.1 Detailed Description	354
3.149.2 Member Function Documentation	354
3.149.3 Member Data Documentation	355
3.150rpki.up_down.issue_pdu Class Reference	356
3.150.1 Detailed Description	357
3.150.2 Member Function Documentation	357
3.150.3 Member Data Documentation	358
3.151rpki.up_down.issue_response_pdu Class Reference	359
3.151.1 Detailed Description	360
3.151.2 Member Function Documentation	360
3.152rpki.up_down.list_pdu Class Reference	361
3.152.1 Detailed Description	362
3.152.2 Member Function Documentation	362
3.153rpki.up_down.list_response_pdu Class Reference	363
3.153.1 Detailed Description	363

3.154rpki.up_down.message_pdu Class Reference	364
3.154.1 Detailed Description	365
3.154.2 Member Function Documentation	365
3.154.3 Member Data Documentation	366
3.155rpki.up_down.multi_uri Class Reference	368
3.155.1 Detailed Description	368
3.155.2 Member Function Documentation	368
3.156rpki.up_down.revoke_pdu Class Reference	370
3.156.1 Detailed Description	371
3.156.2 Member Function Documentation	371
3.156.3 Member Data Documentation	371
3.157rpki.up_down.revoke_response_pdu Class Reference	373
3.157.1 Detailed Description	373
3.158rpki.up_down.revoke_syntax Class Reference	374
3.158.1 Detailed Description	375
3.158.2 Member Function Documentation	375
3.158.3 Member Data Documentation	375
3.159rpki.up_down.sax_handler Class Reference	377
3.159.1 Detailed Description	378
3.159.2 Member Data Documentation	378
3.160rpki.x509.CMS_object Class Reference	380
3.160.1 Detailed Description	382
3.160.2 Member Function Documentation	382
3.160.3 Member Data Documentation	383
3.161rpki.x509.CRL Class Reference	385
3.161.1 Detailed Description	386
3.161.2 Member Function Documentation	386
3.161.3 Member Data Documentation	388
3.162rpki.x509.DER_CMS_object Class Reference	389
3.162.1 Detailed Description	390
3.162.2 Member Function Documentation	390

3.162.3 Member Data Documentation	390
3.163rpki.x509.DER_object Class Reference	392
3.163.1 Detailed Description	394
3.163.2 Member Function Documentation	394
3.163.3 Member Data Documentation	397
3.164rpki.x509.PEM_converter Class Reference	398
3.164.1 Detailed Description	399
3.164.2 Member Function Documentation	399
3.164.3 Member Data Documentation	400
3.165rpki.x509.PKCS10 Class Reference	401
3.165.1 Detailed Description	402
3.165.2 Member Function Documentation	402
3.165.3 Member Data Documentation	403
3.166rpki.x509.ROA Class Reference	405
3.166.1 Detailed Description	406
3.166.2 Member Function Documentation	406
3.166.3 Member Data Documentation	406
3.167rpki.x509.RSA Class Reference	407
3.167.1 Detailed Description	408
3.167.2 Member Function Documentation	408
3.167.3 Member Data Documentation	410
3.168rpki.x509.RSAPublic Class Reference	411
3.168.1 Detailed Description	412
3.168.2 Member Function Documentation	412
3.168.3 Member Data Documentation	413
3.169rpki.x509.SignedManifest Class Reference	414
3.169.1 Detailed Description	415
3.169.2 Member Function Documentation	415
3.169.3 Member Data Documentation	415
3.170rpki.x509.X509 Class Reference	417
3.170.1 Detailed Description	418

3.170.2 Member Function Documentation	418
3.170.3 Member Data Documentation	420
3.171rpki.x509.XML_CMS_object Class Reference	423
3.171.1 Detailed Description	424
3.171.2 Member Function Documentation	424
3.171.3 Member Data Documentation	425
3.172rpki.xml_utils.base_elt Class Reference	427
3.172.1 Detailed Description	428
3.172.2 Member Function Documentation	428
3.172.3 Member Data Documentation	429
3.173rpki.xml_utils.data_elt Class Reference	431
3.173.1 Detailed Description	432
3.173.2 Member Function Documentation	432
3.174rpki.xml_utils.msg Class Reference	435
3.174.1 Detailed Description	436
3.174.2 Member Function Documentation	436
3.174.3 Member Data Documentation	436
3.175rpki.xml_utils.sax_handler Class Reference	438
3.175.1 Detailed Description	439
3.175.2 Member Function Documentation	439
3.175.3 Member Data Documentation	441
3.176Sequence Class Reference	441
3.177SequenceOf Class Reference	442
3.178TextWrapper Class Reference	442
3.179Checker Class Reference	443
3.180HTTPTLSConnection Class Reference	443
3.181TLSSocketServerMixIn Class Reference	444
3.182ContentHandler Class Reference	445
4 File Documentation	446
4.1 __init__.py File Reference	446

4.2 config.py File Reference	446
4.3 cross_certify.py File Reference	446
4.4 exceptions.py File Reference	447
4.5 https.py File Reference	448
4.6 ipaddrs.py File Reference	448
4.7 irbe_cli.py File Reference	448
4.8 irdbd.py File Reference	450
4.9 left_right.py File Reference	450
4.10 log.py File Reference	451
4.11 manifest.py File Reference	452
4.12 oids.py File Reference	452
4.13 pubd.py File Reference	452
4.14 publication.py File Reference	453
4.15 relaxng.py File Reference	454
4.16 resource_set.py File Reference	454
4.17 roa.py File Reference	455
4.18 rootd.py File Reference	455
4.19 rpki_engine.py File Reference	457
4.20 rpkid.py File Reference	457
4.21 sql.py File Reference	457
4.22 sundial.py File Reference	458
4.23 up_down.py File Reference	458
4.24 x509.py File Reference	459
4.25 xml_utils.py File Reference	459

1 RPKI Engine Reference Manual

This collection of Python modules implements a prototype of the RPKI Engine. This is a work in progress.

See <http://viewvc.hactrn.net/subvert-rpki.hactrn.net/> for code, design documents, a text mirror of portions of APNIC's Wiki, etc.

The documentation you're reading is generated automatically by Doxygen from com-

ments and documentation in [the code](#).

Besides the automatically-generated code documentation, this manual also includes documentation of the overall package:

- The [installation instructions](#)
- The [operation instructions](#)
- A description of the [left-right protocol](#)
- A description of the [publication protocol](#)
- A description of the [BPKI model](#) used to secure the up-down, left-right, and publication protocols
- A description of the several [SQL database schemas](#)
- Some suggestions for [further reading](#)

This work has been funded by [ARIN](#), in collaboration with the other Regional Internet Registries.

2 Namespace Documentation

2.1 Package cross_certify

Functions

- def [usage](#)

Variables

- tuple [cert = rpki.x509.X509\(POWpkix = x\)](#)
- tuple [child = rpki.x509.X509\(Auto_file = a\)](#)
- tuple [f = open\(serial_file, "r"\)](#)
- tuple [keypair = rpki.x509.RSA\(Auto_file = a\)](#)
- tuple [lifetime = rpki.sundial.timedelta\(days = 30\)](#)
- [notAfter = now+lifetime](#)
- tuple [now = rpki.sundial.now\(\)](#)
- [output = None](#)
- tuple [parent = rpki.x509.X509\(Auto_file = a\)](#)
- tuple [serial = f.read\(\)](#)
- [serial_file = a](#)
- tuple [x = POW.pkix.Certificate\(\)](#)

2.1.1 Detailed Description

Cross-certification tool to issue a new certificate based on an old one that was issued by somebody else. The point of the exercise is to end up with a valid certificate in our own BPKI which has the same subject name and subject public key as the one we're replacing.

Much of this code lifted from rpki.x509.X509.issue(), but this is a sufficiently different purpose that it's probably not worth refactoring.

```
Usage: python cross_certify.py { -i | --in      } input_cert
                  { -c | --ca      } issuing_cert
                  { -k | --key     } issuing_cert_key
                  { -s | --serial  } serial_filename
                  [ { -h | --help } ]
                  [ { -o | --out   } filename (default: stdout) ]
                  [ { -l | --lifetime } timedelta (default: 30 days) ]
```

\$Id: cross_certify.py 1995 2008-07-15 17:38:45Z sra \$

Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

2.1.2 Function Documentation

2.1.2.1 def cross_certify.usage (code)

Definition at line 42 of file cross_certify.py.

2.1.3 Variable Documentation

2.1.3.1 tuple cross_certify.cert = rpki.x509.X509(POWpkix = x)

Definition at line 96 of file cross_certify.py.

2.1.3.2 tuple cross_certify.child = rpki.x509.X509(Auto_file = a)

Definition at line 55 of file cross_certify.py.

2.1.3.3 tuple cross_certify::f = open(serial_file, "r")

Definition at line 73 of file cross_certify.py.

2.1.3.4 tuple cross_certify.keypair = rpki.x509.RSA(Auto_file = a)

Definition at line 61 of file cross_certify.py.

2.1.3.5 tuple cross_certify::lifetime = rpki.sundial.timedelta(days = 30)

Definition at line 47 of file cross_certify.py.

2.1.3.6 cross_certify.notAfter = now+lifetime

Definition at line 70 of file cross_certify.py.

2.1.3.7 tuple cross_certify.now = rpki.sundial.now()

Definition at line 69 of file cross_certify.py.

2.1.3.8 cross_certify.output = None

Definition at line 46 of file cross_certify.py.

2.1.3.9 tuple cross_certify.parent = rpki.x509.X509(Auto_file = a)

Definition at line 59 of file cross_certify.py.

2.1.3.10 int cross_certify::serial = f.read()

Definition at line 74 of file cross_certify.py.

2.1.3.11 cross_certify.serial_file = a

Definition at line 63 of file cross_certify.py.

2.1.3.12 tuple cross_certify.x = POW.pkix.Certificate()

Definition at line 80 of file cross_certify.py.

2.2 Package irbe_cli

Classes

- class [bsc_elt](#)

- class `certificate_elt`
- class `child_elt`
- class `client_elt`
- class `cmd_elt_mixin`
- class `cmd_msg_mixin`
- class `config_elt`
- class `crl_elt`
- class `left_right_cms_msg`
- class `left_right_msg`
- class `left_right_sax_handler`
- class `manifest_elt`
- class `parent_elt`
- class `publication_cms_msg`
- class `publication_msg`
- class `publication_sax_handler`
- class `repository_elt`
- class `roa_elt`
- class `route_origin_elt`
- class `self_elt`
- class `UsageWrapper`

Functions

- def `call_daemon`
- def `usage`

Variables

- list `argv` = sys.argv[1:]
- tuple `cfg` = `rpkid.config.parser(cfg_file, "irbe_cli")`
- string `cfg_file` = "irbe.conf"
- tuple `client_cert` = `rpkid.x509.X509(Auto_file = cfg.get("rpkid-irbe-cert"))`
- tuple `client_key` = `rpkid.x509.RSA(Auto_file = cfg.get("rpkid-irbe-key"))`
- `cms_class` = `left_right_cms_msg`,
- `pem_out` = None
- `q_msg` = `q_msg_left_right`
- tuple `q_msg_left_right` = `left_right_msg()`
- tuple `q_msg_publication` = `publication_msg()`
- list `q_pdu` = `left_right_msg.pdus[argv[0]]`
- tuple `server_ta`
- list `top_opts` = ["`config`"=, "`help`", "`pem_out`"=, "`verbose`"=]
- tuple `url` = `cfg.get("rpkid-url")`
- tuple `usage_fill` = `UsageWrapper(subsequent_indent = " " * 4)`
- `verbose` = False

2.2.1 Detailed Description

Command line IR back-end control program for rpkid and pubd.

```
$Id: irbe_cli.py 1995 2008-07-15 17:38:45Z sra $
```

```
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")
```

```
Permission to use, copy, modify, and distribute this software for any  
purpose with or without fee is hereby granted, provided that the above  
copyright notice and this permission notice appear in all copies.
```

```
THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH  
REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY  
AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT,  
INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM  
LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE  
OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR  
PERFORMANCE OF THIS SOFTWARE.
```

2.2.2 Function Documentation

2.2.2.1 def irbe_cli.call_daemon (*cms_class*, *client_key*, *client_cert*, *server_ta*, *url*, *q_msg*)

Definition at line 223 of file irbe_cli.py.

2.2.2.2 def irbe_cli.usage (*code* = 1)

Definition at line 206 of file irbe_cli.py.

2.2.3 Variable Documentation

2.2.3.1 tuple irbe_cli::argv = sys.argv[1:]

Definition at line 241 of file irbe_cli.py.

2.2.3.2 tuple irbe_cli.cfg = rpki.config.parser(cfg_file, "irbe_cli")

Definition at line 263 of file irbe_cli.py.

2.2.3.3 irbe_cli.cfg_file = "irbe.conf"

Definition at line 246 of file irbe_cli.py.

2.2.3.4 tuple irbe_cli::client_cert = rpki.x509.X509(Auto_file = cfg.get("rpkid- irbe-cert"))

Definition at line 287 of file irbe_cli.py.

2.2.3.5 tuple irbe_cli::client_key = rpki.x509.RSA(Auto_file = cfg.get("rpkid-irbe-key"))

Definition at line 286 of file irbe_cli.py.

2.2.3.6 irbe_cli.cms_class = left_right_cms_msg,

Definition at line 285 of file irbe_cli.py.

2.2.3.7 irbe_cli.pem_out = None

Definition at line 24 of file irbe_cli.py.

2.2.3.8 irbe_cli.q_msg = q_msg_left_right

Definition at line 274 of file irbe_cli.py.

2.2.3.9 tuple irbe_cli.q_msg_left_right = left_right_msg()

Definition at line 265 of file irbe_cli.py.

2.2.3.10 tuple irbe_cli.q_msg_publication = publication_msg()

Definition at line 268 of file irbe_cli.py.

2.2.3.11 list irbe_cli::q_pdu = left_right_msg.pdus[argv[0]]

Definition at line 273 of file irbe_cli.py.

2.2.3.12 tuple irbe_cli::server_ta

Initial value:

```
(rpki.x509.X509(Auto_file = cfg.get("rpkid-bpki-ta")),
 rpki.x509.X509(Auto_file = cfg.get("rpkid-cert")))
```

Definition at line 288 of file irbe_cli.py.

2.2.3.13 list irbe_cli.top_opts = ["config=", "help", "pem_out=", "verbose"]

Definition at line 204 of file irbe_cli.py.

2.2.3.14 tuple irbe_cli::url = cfg.get("rpkid-url")

Definition at line 290 of file irbe_cli.py.

2.2.3.15 tuple irbe_cli.usage_fill = UsageWrapper(subsequent_indent = " " * 4)

Definition at line 33 of file irbe_cli.py.

2.2.3.16 irbe_cli.verbose = False

Definition at line 247 of file irbe_cli.py.

2.3 Package irdbd

Functions

- def [handler](#)

Variables

- tuple [bpki_ta = rpki.x509.X509](#)(Auto_file = cfg.get("bpki-ta"))
- tuple [cfg = rpki.config.parser](#)([cfg_file](#), "irdbd")
- string [cfg_file](#) = "irdbd.conf"
- tuple [client_ta = \(bpki_ta, rpkid_cert\)](#)
- tuple [cur = db.cursor\(\)](#)
- tuple [db](#)
- tuple [handlers = \(\(u.path, handler\),\)](#)
- string [host](#) = "localhost"
- tuple [irdbd_cert = rpki.x509.X509](#)(Auto_file = cfg.get("irdbd-cert"))
- tuple [irdbd_key = rpki.x509.RSA](#)(Auto_file = cfg.get("irdbd-key"))
- int [port](#) = 443
- tuple [rpkid_cert = rpki.x509.X509](#)(Auto_file = cfg.get("rpkid-cert"))
- [server_cert = irdbd_cert](#),
- tuple [startup_msg = cfg.get\("startup-message", ""\)](#)
- tuple [u = urlparse.urlparse\(cfg.get\("https-url"\)\)](#)

2.3.1 Detailed Description

IR database daemon.

Usage: python irdbd.py [{ -c | --config } configfile] [{ -h | --help }]

Default configuration file is irdbd.conf, override with --config option.

```
$Id: irdbd.py 1880 2008-06-12 21:54:53Z sra $  
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")  
  
Permission to use, copy, modify, and distribute this software for any  
purpose with or without fee is hereby granted, provided that the above  
copyright notice and this permission notice appear in all copies.  
  
THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH  
REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY  
AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT,  
INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM  
LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE  
OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR  
PERFORMANCE OF THIS SOFTWARE.
```

2.3.2 Function Documentation

2.3.2.1 def `irdbd.handler(query, path)`

Definition at line 30 of file `irdbd.py`.

2.3.3 Variable Documentation

2.3.3.1 tuple `irdbd.bpkita = rpki.x509.X509(Auto_file = cfg.get("bpki-ta"))`

Definition at line 114 of file `irdbd.py`.

2.3.3.2 tuple `irdbd.cfg = rpki.config.parser(cfg_file, "irdbd")`

Definition at line 102 of file `irdbd.py`.

2.3.3.3 `irdbd.cfg_file = "irdbd.conf"`

Definition at line 90 of file `irdbd.py`.

2.3.3.4 tuple `irdbd.client_ta = (bpki_ta, rpkid_cert)`

Definition at line 130 of file `irdbd.py`.

2.3.3.5 tuple `irdbd.cur = db.cursor()`

Definition at line 112 of file `irdbd.py`.

2.3.3.6 tuple `irdbd.db`

Initial value:

```
MySQLdb.connect(user = cfg.get("sql-username"),
                 db   = cfg.get("sql-database"),
                 passwd = cfg.get("sql-password"))
```

Definition at line 108 of file irdbd.py.

2.3.3.7 tuple irdbd.handlers = ((u.path, handler),)

Definition at line 133 of file irdbd.py.

2.3.3.8 string irdbd.host = "localhost"

Definition at line 131 of file irdbd.py.

2.3.3.9 tuple irdbd.irdbd_cert = rpki.x509.X509(Auto_file = cfg.get("irdbd-cert"))

Definition at line 116 of file irdbd.py.

2.3.3.10 tuple irdbd.irdbd_key = rpki.x509.RSA(Auto_file = cfg.get("irdbd-key"))

Definition at line 117 of file irdbd.py.

2.3.3.11 int irdbd.port = 443

Definition at line 132 of file irdbd.py.

2.3.3.12 tuple irdbd.rpkid_cert = rpki.x509.X509(Auto_file = cfg.get("rpkid-cert"))

Definition at line 115 of file irdbd.py.

2.3.3.13 irdbd.server_cert = irdbd_cert,

Definition at line 129 of file irdbd.py.

2.3.3.14 tuple irdbd.startup_msg = cfg.get("startup-message", "")

Definition at line 104 of file irdbd.py.

2.3.3.15 tuple irdbd.u = urlparse.urlparse(cfg.get("https-url"))

Definition at line 119 of file irdbd.py.

2.4 Package pubd

Classes

- class `pubd_context`

Functions

- def `main`

Variables

- string `cfg_file` = "pubd.conf"
- `profile` = False

2.4.1 Detailed Description

RPKI publication engine.

```
Usage: python pubd.py [ { -c | --config } configfile ]
                  [ { -h | --help } ]
                  [ { -p | --profile } outputfile ]
```

Default configuration file is pubd.conf, override with --config option.

```
$Id: pubd.py 1880 2008-06-12 21:54:53Z sra $
```

```
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")
```

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

2.4.2 Function Documentation

2.4.2.1 def `pubd.main()`

Definition at line 127 of file pubd.py.

2.4.3 Variable Documentation

2.4.3.1 pubd.cfg_file = "pubd.conf"

Definition at line 112 of file pubd.py.

2.4.3.2 pubd.profile = False

Definition at line 113 of file pubd.py.

2.5 Package rootd

Classes

- class [cms_msg](#)
- class [issue_pdu](#)
- class [list_pdu](#)
- class [message_pdu](#)
- class [revoke_pdu](#)
- class [sax_handler](#)

Functions

- def [compose_response](#)
- def [del_subject_cert](#)
- def [get_subject_cert](#)
- def [set_subject_cert](#)
- def [stash_subject_pkcs10](#)
- def [up_down_handler](#)

Variables

- tuple [bpki_ta = rpki.x509.X509](#)(Auto_file = cfg.get("bpki-ta"))
- tuple [cfg = rpki.config.parser\(cfg_file, "rootd"\)](#)
- string [cfg_file = "rootd.conf"](#)
- tuple [child_bpki_cert = rpki.x509.X509](#)(Auto_file = cfg.get("child-bpki-cert"))
- tuple [client_ta = \(bpki_ta, child_bpki_cert\)](#)
- [handlers = up_down_handler](#))
- [host = https_server_host](#),
- tuple [https_server_host = cfg.get\("server-host", ""\)](#)
- tuple [https_server_port = int\(cfg.get\("server-port"\)\)](#)
- [port = https_server_port](#),
- tuple [rootd_bpki_cert = rpki.x509.X509](#)(Auto_file = cfg.get("rootd-bpki-cert"))

- tuple `roottd_bpki_crl = rpki.x509.CRL(Auto_file = cfg.get("roottd-bpki-crl"))`
- tuple `roottd_bpki_key = rpki.x509.RSA(Auto_file = cfg.get("roottd-bpki-key"))`
- tuple `rpki_base_uri = cfg.get("rpki-base-uri", "rsync://" + rpki_class_name + ".invalid")`
- tuple `rpki_class_name = cfg.get("rpki-class-name", "wombat")`
- tuple `rpki_root_cert = rpki.x509.X509(Auto_file = cfg.get("rpki-root-cert"))`
- tuple `rpki_root_cert_uri = cfg.get("rpki-root-cert-uri", rpki_base_uri + "Root.cer")`
- tuple `rpki_root_crl = cfg.get("rpki-root-crl", "Root.crl")`
- tuple `rpki_root_dir = cfg.get("rpki-root-dir")`
- tuple `rpki_root_key = rpki.x509.RSA(Auto_file = cfg.get("rpki-root-key"))`
- tuple `rpki_root_manifest = cfg.get("rpki-root-manifest", "Root.mnf")`
- tuple `rpki_subject_cert = cfg.get("rpki-subject-cert", "Subroot.cer")`
- tuple `rpki_subject_lifetime = rpki.sundial.timedelta(days = 30)`
- tuple `rpki_subject_pkcs10 = cfg.get("rpki-subject-pkcs10", "")`
- `server_cert = roottd_bpki_cert,`

2.5.1 Detailed Description

Trivial RPKI up-down protocol root server, for testing. Not suitable for production use. Overrides a bunch of method definitions from the `rpki.*` classes in order to reuse as much code as possible.

```
Usage: python roottd.py [ { -c | --config } configfile ] [ { -h | --help } ]
```

```
Default configuration file is roottd.conf, override with --config option.
```

```
$Id: roottd.py 1974 2008-07-04 23:45:58Z sra $
```

```
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")
```

```
Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.
```

```
THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH
REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT,
INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM
LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE
OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THIS SOFTWARE.
```

2.5.2 Function Documentation

2.5.2.1 def roottd.compose_response (r_msg)

Definition at line 62 of file roottd.py.

2.5.2.2 def roottd.del_subject_cert ()

Definition at line 50 of file roottd.py.

2.5.2.3 def roottd.get_subject_cert ()

Definition at line 34 of file roottd.py.

2.5.2.4 def roottd.set_subject_cert (cert)

Definition at line 43 of file roottd.py.

2.5.2.5 def roottd.stash_subject_pkcs10 (pkcs10)

Definition at line 55 of file roottd.py.

2.5.2.6 def roottd.up_down_handler (query, path)

Definition at line 169 of file roottd.py.

2.5.3 Variable Documentation**2.5.3.1 tuple roottd.bpki_ta = rpki.x509.X509(Auto_file = cfg.get("bpki-ta"))**

Definition at line 208 of file roottd.py.

2.5.3.2 tuple roottd.cfg = rpki.config.parser(cfg_file, "roottd")

Definition at line 206 of file roottd.py.

2.5.3.3 roottd.cfg_file = "roottd.conf"

Definition at line 194 of file roottd.py.

2.5.3.4 tuple roottd.child_bpki_cert = rpki.x509.X509(Auto_file = cfg.get("child-bpki-cert"))

Definition at line 212 of file roottd.py.

2.5.3.5 tuple roottd.client_ta = (bpki_ta, child_bpki_cert)

Definition at line 233 of file roottd.py.

2.5.3.6 roottd.handlers = up_down_handler)

Definition at line 236 of file roottd.py.

2.5.3.7 roottd.host = https_server_host,

Definition at line 234 of file roottd.py.

2.5.3.8 tuple roottd.https_server_host = cfg.get("server-host", "")

Definition at line 214 of file roottd.py.

2.5.3.9 tuple roottd.https_server_port = int(cfg.get("server-port"))

Definition at line 215 of file roottd.py.

2.5.3.10 roottd.port = https_server_port,

Definition at line 235 of file roottd.py.

2.5.3.11 tuple roottd.roottd_bpki_cert = rpki.x509.X509(Auto_file = cfg.get("roottd-bpki-cert"))

Definition at line 210 of file roottd.py.

2.5.3.12 tuple roottd.roottd_bpki_crl = rpki.x509.CRL(Auto_file = cfg.get("roottd-bpki-crl"))

Definition at line 211 of file roottd.py.

2.5.3.13 tuple roottd.roottd_bpki_key = rpki.x509.RSA(Auto_file = cfg.get("roottd-bpki-key"))

Definition at line 209 of file roottd.py.

2.5.3.14 tuple roottd.rpki_base_uri = cfg.get("rpki-base-uri", "rsync://" + rpki_class_name + ".invalid/")

Definition at line 220 of file roottd.py.

2.5.3.15 tuple roottd.rpki_class_name = cfg.get("rpki-class-name", "wombat")

Definition at line 217 of file roottd.py.

2.5.3.16 tuple roottd.rpki_root_cert = rpki.x509.X509(Auto_file = cfg.get("rpki-root-cert"))

Definition at line 223 of file roottd.py.

2.5.3.17 tuple roottd.rpki_root_cert_uri = cfg.get("rpki-root-cert-uri", rpki_base_uri + "Root.cer")

Definition at line 224 of file roottd.py.

2.5.3.18 tuple roottd.rpki_root_crl = cfg.get("rpki-root-crl", "Root.crl")

Definition at line 227 of file roottd.py.

2.5.3.19 tuple roottd.rpki_root_dir = cfg.get("rpki-root-dir")

Definition at line 219 of file roottd.py.

2.5.3.20 tuple roottd.rpki_root_key = rpki.x509.RSA(Auto_file = cfg.get("rpki-root-key"))

Definition at line 222 of file roottd.py.

2.5.3.21 tuple roottd.rpki_root_manifest = cfg.get("rpki-root-manifest", "Root.mnf")

Definition at line 226 of file roottd.py.

2.5.3.22 tuple roottd.rpki_subject_cert = cfg.get("rpki-subject-cert", "Sub-root.cer")

Definition at line 228 of file roottd.py.

2.5.3.23 tuple roottd.rpki_subject_lifetime = rpki.sundial.timedelta(days = 30)

Definition at line 32 of file roottd.py.

2.5.3.24 tuple roottd.rpki_subject_pkcs10 = cfg.get("rpki-subject-pkcs10", "")

Definition at line 229 of file roottd.py.

2.5.3.25 roottd.server_cert = roottd_bpki_cert,

Definition at line 232 of file roottd.py.

2.6 Package rpki

Packages

- package config
- package exceptions
- package https
- package ipaddrs
- package left_right
- package log
- package manifest
- package oids
- package publication
- package relaxng
- package resource_set
- package roa
- package rpki_engine
- package sql
- package sundial
- package up_down
- package x509
- package xml_utils

2.7 Package rpki.config

Classes

- class parser

2.7.1 Detailed Description

Configuration file parsing utilities, layered on top of stock Python ConfigParser module.

\$Id: config.py 1873 2008-06-12 02:49:41Z sra \$

Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM

LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

2.8 Package rpki.exceptions

Classes

- class [BadClassNameSyntax](#)
- class [BadContactURL](#)
- class [BadIRDBReply](#)
- class [BadIssueResponse](#)
- class [BadPKCS10](#)
- class [BadQuery](#)
- class [BadSender](#)
- class [BadStatusCode](#)
- class [BadURISyntax](#)
- class [BSCNotFound](#)
- class [ChildNotFound](#)
- class [ClassNameMismatch](#)
- class [CMSCRLNotSet](#)
- class [CMSVerificationFailed](#)
- class [DBConsistencyError](#)
- class [DERObjectConversionError](#)
- class [EmptyPEM](#)
- class [HTTPRequestFailed](#)
- class [MissingCMSCRL](#)
- class [MissingCMSEcert](#)
- class [MultipleTLSEECert](#)
- class [MustBePrefix](#)
- class [NotACertificateChain](#)
- class [NotFound](#)
- class [NotImplementedYet](#)
- class [NotInDatabase](#)
- class [ReceivedTLSCACert](#)
- class [RPKI_Exception](#)
- class [ServerShuttingDown](#)
- class [SKIMismatch](#)
- class [SubprocessError](#)
- class [TLSValidation](#)
- class [UnexpectedCMSCerts](#)
- class [UnexpectedCMSCRLs](#)
- class [UnparseableCMSDER](#)
- class [UpstreamError](#)
- class [WrongEContentType](#)

2.8.1 Detailed Description

Exception definitions for RPKI modules.

```
$Id: exceptions.py 1873 2008-06-12 02:49:41Z sra $
```

```
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")
```

```
Permission to use, copy, modify, and distribute this software for any  
purpose with or without fee is hereby granted, provided that the above  
copyright notice and this permission notice appear in all copies.
```

```
THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH  
REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY  
AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT,  
INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM  
LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE  
OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR  
PERFORMANCE OF THIS SOFTWARE.
```

2.9 Package rpki.https

Classes

- class [Checker](#)
- class [httpsClient](#)
- class [httpsServer](#)
- class [requestHandler](#)

Functions

- def [build_https_ta_cache](#)
- def [client](#)
- def [server](#)
- def [tlslite_certChain](#)

Variables

- [debug_tls_certs](#) = False
- [disable_tls_certificate_validation_exceptions](#) = False
- string [rpki_content_type](#) = "application/x-rpki"

2.9.1 Detailed Description

HTTPS utilities, both client and server.

At the moment this only knows how to use the PEM certs in my subversion repository; generalizing it would not be hard, but the more general version should use SQL anyway.

```
$Id: https.py 1873 2008-06-12 02:49:41Z sra $  
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")  
Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.  
THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
```

2.9.2 Function Documentation

2.9.2.1 def rpki.https.build_https_ta_cache (*certs*)

Build a dynamic TLS trust anchor cache.

Definition at line 45 of file https.py.

2.9.2.2 def rpki.https.client (*msg, client_key, client_cert, server_ta, url, timeout = 300*)

Open client HTTPS connection, send a message, wait for response.

This function wraps most of what one needs to do to send a message over HTTPS and get a response. The certificate checking isn't quite up to snuff; it's better than with the other packages I've found, but doesn't appear to handle subjectAltName extensions (sigh).

Definition at line 152 of file https.py.

2.9.2.3 def rpki.https.server (*handlers, server_key, server_cert, port = 4433, host = "", client_ta = None, dynamic_https_trust_anchor = None, catch_signals = (signal.SIGINT, signal.SIGTERM)*)

Run an HTTPS server and wait (forever) for connections.

Definition at line 266 of file https.py.

2.9.2.4 def rpki.https.tlslite_certChain (x509)

Utility function to construct tlslite certChains.

Definition at line 38 of file https.py.

2.9.3 Variable Documentation

2.9.3.1 rpki::https.debug_tls_certs = False

Definition at line 34 of file https.py.

2.9.3.2 rpki::https.disable_tls_certificate_validation_exceptions = False

Definition at line 31 of file https.py.

2.9.3.3 string rpki::https.rpki_content_type = "application/x-rpki"

Definition at line 36 of file https.py.

2.10 Package rpki.ipaddrs

Classes

- class [v4addr](#)
- class [v6addr](#)

2.10.1 Detailed Description

Classes to represent IP addresses.

Given some of the other operations we need to perform on them, it's most convenient to represent IP addresses as Python "long" values. The classes in this module just wrap suitable read/write syntax around the underlying "long" type.

These classes also supply a "bits" attribute for use by other code built on these classes; for the most part, IPv6 addresses really are just IPv4 addresses with more bits, so we supply the number of bits once, here, thus avoiding a lot of duplicate code elsewhere.

\$Id: ipaddrs.py 1873 2008-06-12 02:49:41Z sra \$

Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above

copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

2.11 Package rpki.left_right

Classes

- class [bsc_elt](#)
- class [child_elt](#)
- class [cms_msg](#)
- class [data_elt](#)
- class [left_right_namespace](#)
- class [list_resources_elt](#)
- class [msg](#)
- class [parent_elt](#)
- class [report_error_elt](#)
- class [repository_elt](#)
- class [route_origin_elt](#)
- class [sax_handler](#)
- class [self_elt](#)

Variables

- [enforce_strict_up_down_xml_sender](#) = False

2.11.1 Detailed Description

RPKI "left-right" protocol.

```
$Id: left_right.py 1987 2008-07-11 06:05:37Z sra $
```

Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT,

INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

2.11.2 Variable Documentation

2.11.2.1 rpki::left_right.enforce_strict_up_down_xml_sender = False

Definition at line 26 of file left_right.py.

2.12 Package rpki.log

Classes

- class [logger](#)

Functions

- def [init](#)
- def [set_trace](#)
- def [trace](#)

Variables

- tuple [debug](#) = [logger](#)(syslog.LOG_DEBUG)
- [enable_trace](#) = False
Whether call tracing is enabled.
- tuple [error](#) = [logger](#)(syslog.LOG_ERR)
- tuple [info](#) = [logger](#)(syslog.LOG_INFO)
- tuple [note](#) = [logger](#)(syslog.LOG_NOTICE)
- tuple [warn](#) = [logger](#)(syslog.LOG_WARNING)

2.12.1 Detailed Description

Logging facilities for RPKI libraries.

```
$Id: log.py 1873 2008-06-12 02:49:41Z sra $
```

Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

2.12.2 Function Documentation

2.12.2.1 def rpki.log.init (*ident* = "rpki", *flags* = syslog.LOG_- PID | syslog.LOG_PERROR, *facility* = syslog.LOG_DAEMON)

Initialize logging system.

Definition at line 27 of file log.py.

2.12.2.2 def rpki.log.set_trace (*trace*)

Enable or disable call tracing.

Definition at line 32 of file log.py.

2.12.2.3 def rpki.log.trace ()

Execution trace -- where are we now, and whence came we here?

Definition at line 53 of file log.py.

2.12.3 Variable Documentation

2.12.3.1 tuple rpki::log.debug = logger(syslog.LOG_DEBUG)

Definition at line 51 of file log.py.

2.12.3.2 rpki::log::enable_trace = False

Whether call tracing is enabled.

Definition at line 25 of file log.py.

2.12.3.3 tuple rpki::log.error = logger(syslog.LOG_ERR)

Definition at line 47 of file log.py.

2.12.3.4 tuple rpki::log.info = logger(syslog.LOG_INFO)

Definition at line 50 of file log.py.

2.12.3.5 tuple rpki::log.note = logger(syslog.LOG_NOTICE)

Definition at line 49 of file log.py.

2.12.3.6 tuple rpki::log.warn = logger(syslog.LOG_WARNING)

Definition at line 48 of file log.py.

2.13 Package rpki.manifest

Classes

- class [FileAndHash](#)
- class [FilesAndHashes](#)
- class [Manifest](#)

2.13.1 Detailed Description

Signed manifests. This is just the ASN.1 encoder, the rest is in rpki.x509 with the rest of the DER_object code.

Note that rpki.x509.SignedManifest implements the signed manifest; the structures here are just the payload of the CMS eContent field.

\$Id: manifest.py 1873 2008-06-12 02:49:41Z sra \$

Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

2.14 Package rpki.oids

Variables

- tuple `name2oid` = `dict((v,k) for k,v in oid2name.items())`

Mapping table of string names to OIDs.

- dictionary `oid2name`

Mapping table of OIDs to conventional string names.

2.14.1 Detailed Description

OID database.

```
$Id: oids.py 1898 2008-06-17 23:32:37Z sra $
```

```
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")
```

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

2.14.2 Variable Documentation

2.14.2.1 `rpki::oids::name2oid = dict((v,k) for k,v in oid2name.items())`

Mapping table of string names to OIDs.

Definition at line 57 of file oids.py.

2.14.2.2 `rpki::oids::oid2name`

Initial value:

```
{
    (1, 2, 840, 113549, 1, 1, 11)      : "sha256WithRSAEncryption",
    (1, 2, 840, 113549, 1, 1, 12)      : "sha384WithRSAEncryption",
    (1, 2, 840, 113549, 1, 1, 13)      : "sha512WithRSAEncryption",
    (1, 2, 840, 113549, 1, 7, 1)       : "id-data",
    (1, 2, 840, 113549, 1, 9, 16)      : "id-smime",
    (1, 2, 840, 113549, 1, 9, 16, 1)   : "id-ct",
```

```
(1, 2, 840, 113549, 1, 9, 16, 1, 24) : "id-ct-routeOriginAttestation",
(1, 2, 840, 113549, 1, 9, 16, 1, 26) : "id-ct-rpkiManifest",
(1, 2, 840, 113549, 1, 9, 16, 1, 28) : "id-ct-xml",
(1, 3, 6, 1, 5, 5, 7, 1, 1) : "authorityInfoAccess",
(1, 3, 6, 1, 5, 5, 7, 1, 11) : "subjectInfoAccess",
(1, 3, 6, 1, 5, 5, 7, 1, 7) : "sbgp-ipAddrBlock",
(1, 3, 6, 1, 5, 5, 7, 1, 8) : "sbgp-autonomousSysNum",
(1, 3, 6, 1, 5, 5, 7, 14, 2) : "id-cp-ipAddr-asNumber",
(1, 3, 6, 1, 5, 5, 7, 48, 2) : "id-ad-caIssuers",
(1, 3, 6, 1, 5, 5, 7, 48, 5) : "id-ad-caRepository",
(1, 3, 6, 1, 5, 5, 7, 48, 9) : "id-ad-signedObjectRepository",
(1, 3, 6, 1, 5, 5, 7, 48, 10) : "id-ad-rpkiManifest",
(1, 3, 6, 1, 5, 5, 7, 48, 11) : "id-ad-signedObject",
(2, 16, 840, 1, 101, 3, 4, 2, 1) : "id-sha256",
(2, 5, 29, 14) : "subjectKeyIdentifier",
(2, 5, 29, 15) : "keyUsage",
(2, 5, 29, 19) : "basicConstraints",
(2, 5, 29, 20) : "cRLNumber",
(2, 5, 29, 31) : "cRLDistributionPoints",
(2, 5, 29, 32) : "certificatePolicies",
(2, 5, 29, 35) : "authorityKeyIdentifier",
(2, 5, 4, 3) : "commonName",
}
```

Mapping table of OIDs to conventional string names.

Definition at line 23 of file oids.py.

2.15 Package rpki.publication

Classes

- class [certificate_elt](#)
- class [client_elt](#)
- class [cms_msg](#)
- class [config_elt](#)
- class [control_elt](#)
- class [crl_elt](#)
- class [manifest_elt](#)
- class [msg](#)
- class [publication_namespace](#)
- class [publication_object_elt](#)
- class [report_error_elt](#)
- class [roa_elt](#)
- class [sax_handler](#)

Variables

- tuple `obj2elt` = `dict((e.payload_type, e) for e in (certificate_elt, crl_elt, manifest_elt, roa_elt))`

Map of data types to publication element wrapper types.

2.15.1 Detailed Description

RPKI "publication" protocol.

\$Id: publication.py 1914 2008-06-21 18:58:52Z sra \$

Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

2.15.2 Variable Documentation

2.15.2.1 `rpkilib::publication::obj2elt` = `dict((e.payload_type, e) for e in (certificate_elt, crl_elt, manifest_elt, roa_elt))`

Map of data types to publication element wrapper types.

Definition at line 232 of file publication.py.

2.16 Package rpki.relaxng

Variables

- tuple `left_right`

Parsed RelaxNG left_right schema.

- tuple `publication`

Parsed RelaxNG publication schema.

- tuple `up_down`

Parsed RelaxNG [up_down](#) schema.

2.16.1 Variable Documentation

2.16.1.1 rpkি::relaxng::left_right

Parsed RelaxNG [left_right](#) schema.

Definition at line 7 of file relaxng.py.

2.16.1.2 rpkি::relaxng::publication

Parsed RelaxNG [publication](#) schema.

Definition at line 1214 of file relaxng.py.

2.16.1.3 rpkি::relaxng::up_down

Parsed RelaxNG [up_down](#) schema.

Definition at line 960 of file relaxng.py.

2.17 Package rpkি.resource_set

Classes

- class [resource_bag](#)
- class [resource_range](#)
- class [resource_range_as](#)
- class [resource_range_ip](#)
- class [resource_range_ipv4](#)
- class [resource_range_ipv6](#)
- class [resource_set](#)
- class [resource_set_as](#)
- class [resource_set_ip](#)
- class [resource_set_ipv4](#)
- class [resource_set_ipv6](#)
- class [roa_prefix](#)
- class [roa_prefix_ipv4](#)
- class [roa_prefix_ipv6](#)
- class [roa_prefix_set](#)
- class [roa_prefix_set_ipv4](#)
- class [roa_prefix_set_ipv6](#)

Functions

- def `_bs2long`
- def `_long2bs`
- def `_rsplit`
- def `test1`
- def `test2`

Variables

- string `inherit_token` = "<inherit>"
Token used to indicate inheritance in read and print syntax.

2.17.1 Detailed Description

Classes dealing with sets of resources.

The basic mechanics of a resource set are the same for any of the resources we handle (ASNs, IPv4 addresses, or IPv6 addresses), so we can provide the same operations on any of them, even though the underlying details vary.

We also provide some basic set operations (union, intersection, etc).

```
$Id: resource_set.py 1984 2008-07-08 08:00:36Z sra $
```

```
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")
```

```
Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.
```

```
THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
```

2.17.2 Function Documentation

2.17.2.1 def rpki.resource_set._bs2long (bs, addrlen, fill) [private]

Utility function to convert a bitstring (POW.pkix tuple representation) into a Python long.

Definition at line 419 of file resource_set.py.

2.17.2.2 def rpki.resource_set._long2bs (number, addrlen, prefixlen = None, strip = None) [private]

Utility function to convert a Python long into a POW.pkix tuple bitstring. This is a bit complicated because it supports the fiendishly compact encoding used in RFC 3779.

Definition at line 430 of file resource_set.py.

2.17.2.3 def rpki.resource_set._rsplit (rset, that) [private]

Utility function to split a resource range into two resource ranges.

Definition at line 148 of file resource_set.py.

2.17.2.4 def rpki.resource_set.test1 (t, s1, s2)

Definition at line 733 of file resource_set.py.

2.17.2.5 def rpki.resource_set.test2 (t, s1, s2)

Definition at line 766 of file resource_set.py.

2.17.3 Variable Documentation

2.17.3.1 rpki::resource_set::inherit_token = "<inherit>"

Token used to indicate inheritance in read and print syntax.

Definition at line 33 of file resource_set.py.

2.18 Package rpki.roa

Classes

- class [ROAIPAddress](#)
- class [ROAIPAddresses](#)
- class [ROAIPAddressFamilies](#)
- class [ROAIPAddressFamily](#)
- class [RouteOriginAttestation](#)

2.18.1 Detailed Description

ROA (Route Origin Authorization).

At the moment this is just the ASN.1 encoder.

This corresponds to draft-ietf-sidr-roa-format, which is a work in progress, so this may need updating later.

```
$Id: roa.py 1975 2008-07-07 14:49:00Z sra $
```

```
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")
```

```
Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.
```

```
THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
```

`draft-ietf-sidr-roa-format-03 2.1.3.2 specifies:`

```
RouteOriginAttestation ::= SEQUENCE {
    version [0] INTEGER DEFAULT 0,
    asID ASID,
    ipAddrBlocks SEQUENCE OF ROAIPAddressFamily }

ASID ::= INTEGER

ROAIPAddressFamily ::= SEQUENCE {
    addressFamily OCTET STRING (SIZE (2..3)),
    addresses SEQUENCE OF ROAIPAddress }

ROAIPAddress ::= SEQUENCE {
    address IPAddress,
    maxLength INTEGER OPTIONAL }

IPAddress ::= BIT STRING
```

2.19 Package rpki.rpki_engine

Classes

- class [ca_detail_obj](#)
- class [ca_obj](#)
- class [child_cert_obj](#)
- class [revoked_cert_obj](#)
- class [rpkid_context](#)

2.19.1 Detailed Description

Global context for rpkid.

```
$Id: rpki_engine.py 1932 2008-06-23 06:04:29Z sra $
```

```
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")
```

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

2.20 Package rpki.sql

Classes

- class [session](#)
- class [sql_persistent](#)
- class [template](#)

2.20.1 Detailed Description

SQL interface code.

```
$Id: sql.py 1979 2008-07-08 06:07:47Z sra $
```

```
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")
```

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

2.21 Package rpki.sundial

Classes

- class [datetime](#)
- class [timedelta](#)

Functions

- def [now](#)
- def [test](#)

2.21.1 Detailed Description

Unified RPKI date/time handling, based on the standard Python datetime module.

Module name chosen to sidestep a nightmare of import-related errors that occur with the more obvious module names.

```
$Id: sundial.py 1915 2008-06-21 19:35:54Z sra $
```

```
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")
```

```
Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.
```

```
THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.
```

2.21.2 Function Documentation

2.21.2.1 def rpki.sundial.now ()

Get current timestamp.

Definition at line 26 of file sundial.py.

2.21.2.2 def rpki.sundial.test (t)

Definition at line 182 of file sundial.py.

2.22 Package rpki.up_down

Classes

- class [base_elt](#)
- class [certificate_elt](#)
- class [class_elt](#)
- class [class_response_syntax](#)
- class [cms_msg](#)
- class [error_response_pdu](#)
- class [issue_pdu](#)
- class [issue_response_pdu](#)
- class [list_pdu](#)
- class [list_response_pdu](#)
- class [message_pdu](#)
- class [multi_uri](#)
- class [revoke_pdu](#)
- class [revoke_response_pdu](#)
- class [revoke_syntax](#)
- class [sax_handler](#)

Variables

- dictionary [nsmap](#) = { None : [xmlns](#) }
- string [xmlns](#) = "http://www.apnic.net/specs/rescerts/up-down/"

2.22.1 Detailed Description

RPKI "up-down" protocol.

\$Id: up_down.py 1873 2008-06-12 02:49:41Z sra \$

Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

2.22.2 Variable Documentation

2.22.2.1 `dictionary rpki::up_down.nsmap = { None : xmlns }`

Definition at line 26 of file up_down.py.

2.22.2.2 `string rpki::up_down.xmlns = "http://www.apnic.net/specs/rescerts/up-down/"`

Definition at line 24 of file up_down.py.

2.23 Package rpki.x509

Classes

- class [CMS_object](#)
- class [CRL](#)
- class [DER_CMS_object](#)
- class [DER_object](#)
- class [PEM_converter](#)
- class [PKCS10](#)
- class [ROA](#)
- class [RSA](#)
- class [RSApublic](#)
- class [SignedManifest](#)
- class [X509](#)
- class [XML_CMS_object](#)

Functions

- def [calculate_SKI](#)
- def [POWify_OID](#)

2.23.1 Detailed Description

One X.509 implementation to rule them all...

...and in the darkness hide the twisty maze of partially overlapping X.509 support packages in Python.

There are several existing packages, none of which do quite what I need, due to age, lack of documentation, specialization, or lack of foresight on somebody's part (perhaps mine). This module attempts to bring together the functionality I need in a way that hides at least some of the nasty details. This involves a lot of format conversion.

```
$Id: x509.py 1916 2008-06-21 19:44:45Z sra $  
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")  
  
Permission to use, copy, modify, and distribute this software for any  
purpose with or without fee is hereby granted, provided that the above  
copyright notice and this permission notice appear in all copies.  
  
THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH  
REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY  
AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT,  
INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM  
LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE  
OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR  
PERFORMANCE OF THIS SOFTWARE.
```

2.23.2 Function Documentation

2.23.2.1 def rpki.x509.calculate_SKI (*public_key_der*)

Calculate the SKI value given the DER representation of a public key, which requires first peeling the ASN.1 wrapper off the key.

Definition at line 33 of file x509.py.

2.23.2.2 def rpki.x509.POWify_OID (*oid*)

Utility function to convert tuple form of an OID to the dotted-decimal string form that POW uses.

Definition at line 574 of file x509.py.

2.24 Package rpki.xml_utils

Classes

- class [base_elt](#)
- class [data_elt](#)
- class [msg](#)
- class [sax_handler](#)

2.24.1 Detailed Description

XML utilities.

```
$Id: xml_utils.py 1873 2008-06-12 02:49:41Z sra $  
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")  
Permission to use, copy, modify, and distribute this software for any  
purpose with or without fee is hereby granted, provided that the above  
copyright notice and this permission notice appear in all copies.  
  
THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH  
REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY  
AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT,  
INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM  
LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE  
OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR  
PERFORMANCE OF THIS SOFTWARE.
```

2.25 Package rpkid

Functions

- def `main`

Variables

- string `cfg_file` = "rpkid.conf"
- `profile` = None

2.25.1 Detailed Description

RPKI engine daemon. This is still very much a work in progress.

```
Usage: python rpkid.py [ { -c | --config } configfile ]  
                  [ { -h | --help } ]  
                  [ { -p | --profile } outputfile ]
```

Default configuration file is rpkid.conf, override with --config option.

```
$Id: rpkid.py 1880 2008-06-12 21:54:53Z sra $
```

```
Copyright (C) 2007--2008 American Registry for Internet Numbers ("ARIN")
```

Permission to use, copy, modify, and distribute this software for any
purpose with or without fee is hereby granted, provided that the above
copyright notice and this permission notice appear in all copies.

```
THE SOFTWARE IS PROVIDED "AS IS" AND ARIN DISCLAIMS ALL WARRANTIES WITH  
REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY  
AND FITNESS. IN NO EVENT SHALL ARIN BE LIABLE FOR ANY SPECIAL, DIRECT,  
INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM  
LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE  
OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
```

PERFORMANCE OF THIS SOFTWARE.

2.25.2 Function Documentation

2.25.2.1 `def rpkid.main ()`

Definition at line 52 of file rpkid.py.

2.25.3 Variable Documentation

2.25.3.1 `rpkid.cfg_file = "rpkid.conf"`

Definition at line 37 of file rpkid.py.

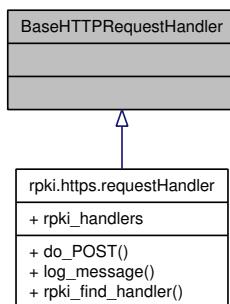
2.25.3.2 `rpkid.profile = None`

Definition at line 38 of file rpkid.py.

3 Class Documentation

3.1 BaseHTTPRequestHandler Class Reference

Inheritance diagram for BaseHTTPRequestHandler:

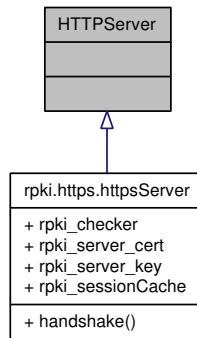


The documentation for this class was generated from the following file:

- [https.py \(1873\)](#)

3.2 HTTPServer Class Reference

Inheritance diagram for HTTPServer:

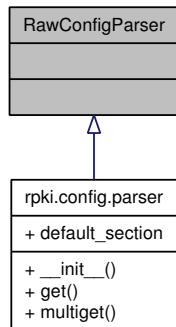


The documentation for this class was generated from the following file:

- [https.py \(1873\)](#)

3.3 RawConfigParser Class Reference

Inheritance diagram for RawConfigParser:

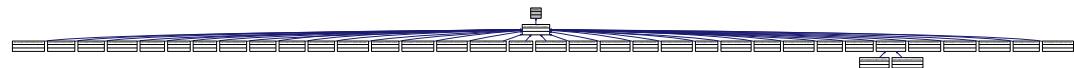


The documentation for this class was generated from the following file:

- [config.py \(1873\)](#)

3.4 Exception Class Reference

Inheritance diagram for Exception:

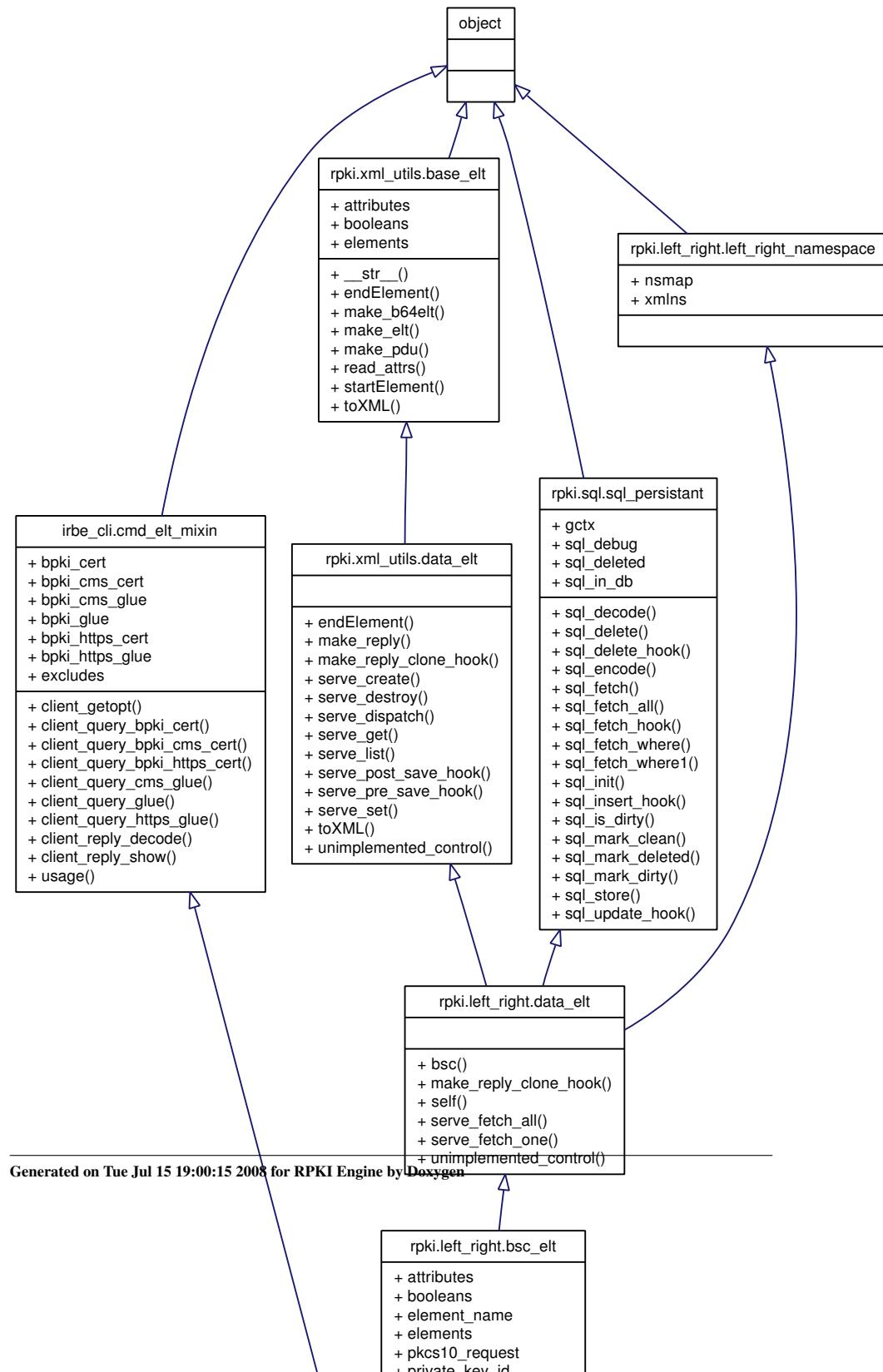


The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.5 irbe_cli.bsc_elt Class Reference

Inheritance diagram for irbe_cli.bsc_elt:



Public Member Functions

- def `client_query_signing_cert`
- def `client_query_signing_cert_crl`
- def `client_reply_decode`

Public Attributes

- `signing_cert`
- `signing_cert_crl`

Static Public Attributes

- tuple `excludes` = ("pkcs10_request",)

XML attributes and elements that should not be allowed as command line arguments.

3.5.1 Detailed Description

Definition at line 117 of file irbe_cli.py.

3.5.2 Member Function Documentation

3.5.2.1 def `irbe_cli.bsc_elt.client_query_signing_cert (self, arg)`

--signing_cert option.

Definition at line 121 of file irbe_cli.py.

3.5.2.2 def `irbe_cli.bsc_elt.client_query_signing_cert_crl (self, arg)`

--signing_cert_crl option.

Definition at line 125 of file irbe_cli.py.

3.5.2.3 def `irbe_cli.bsc_elt.client_reply_decode (self)`

Reimplemented from `irbe_cli.cmd_elt_mixin`.

Definition at line 129 of file irbe_cli.py.

3.5.3 Member Data Documentation

3.5.3.1 tuple irbe_cli.bsc_elt.excludes = ("pkcs10_request",) [static]

XML attributes and elements that should not be allowed as command line arguments.

At the moment the only such is the bsc.pkcs10_request sub-element, but writing this generally is no harder than handling that one special case.

Reimplemented from [irbe_cli.cmd_elt_mixin](#).

Definition at line 119 of file irbe_cli.py.

3.5.3.2 irbe_cli.bsc_elt.signing_cert

Reimplemented from [rpki.left_right.bsc_elt](#).

Definition at line 123 of file irbe_cli.py.

3.5.3.3 irbe_cli.bsc_elt.signing_cert_crl

Reimplemented from [rpki.left_right.bsc_elt](#).

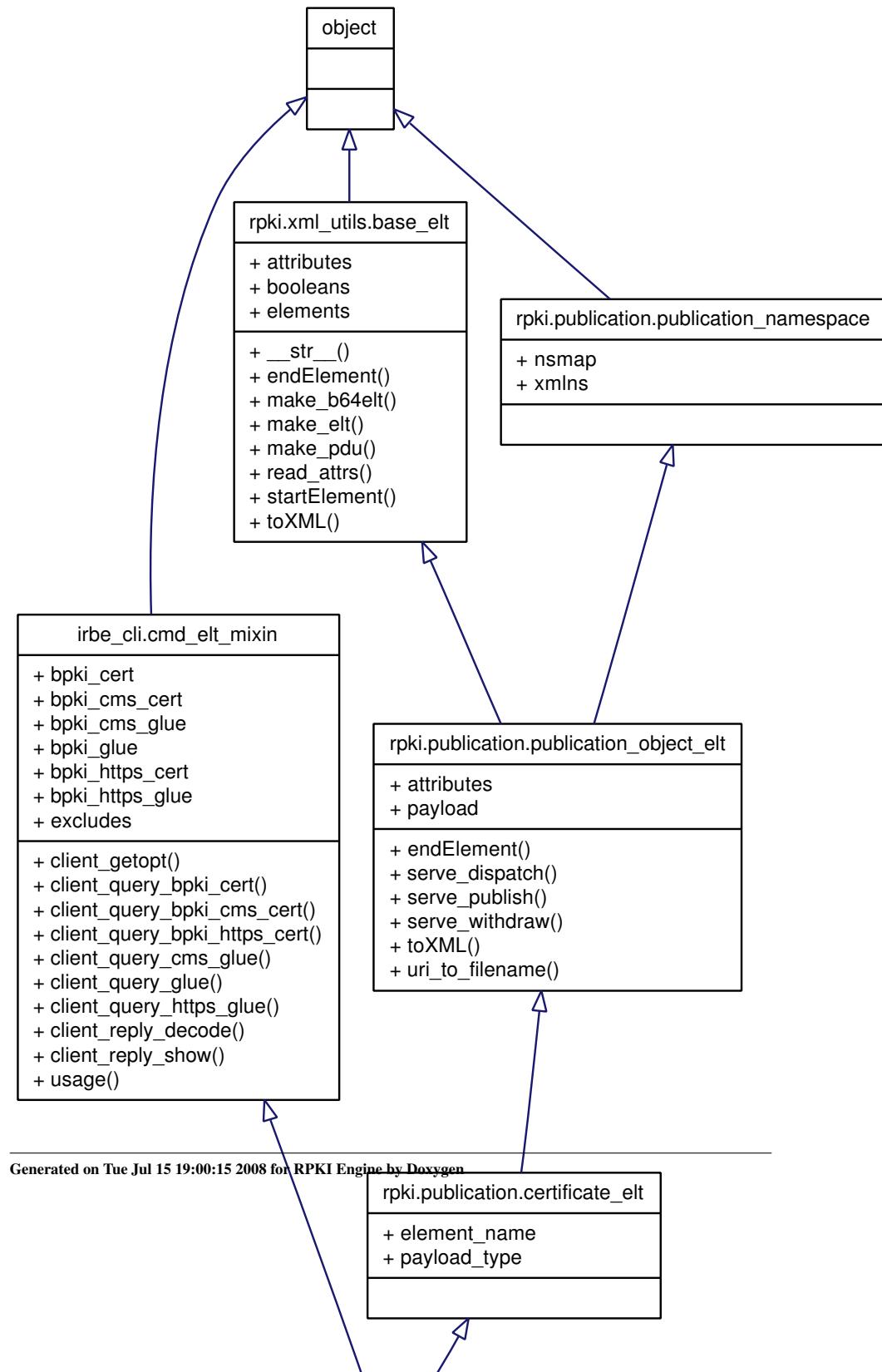
Definition at line 127 of file irbe_cli.py.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.6 irbe_cli.certificate_elt Class Reference

Inheritance diagram for irbe_cli.certificate_elt:



3.6.1 Detailed Description

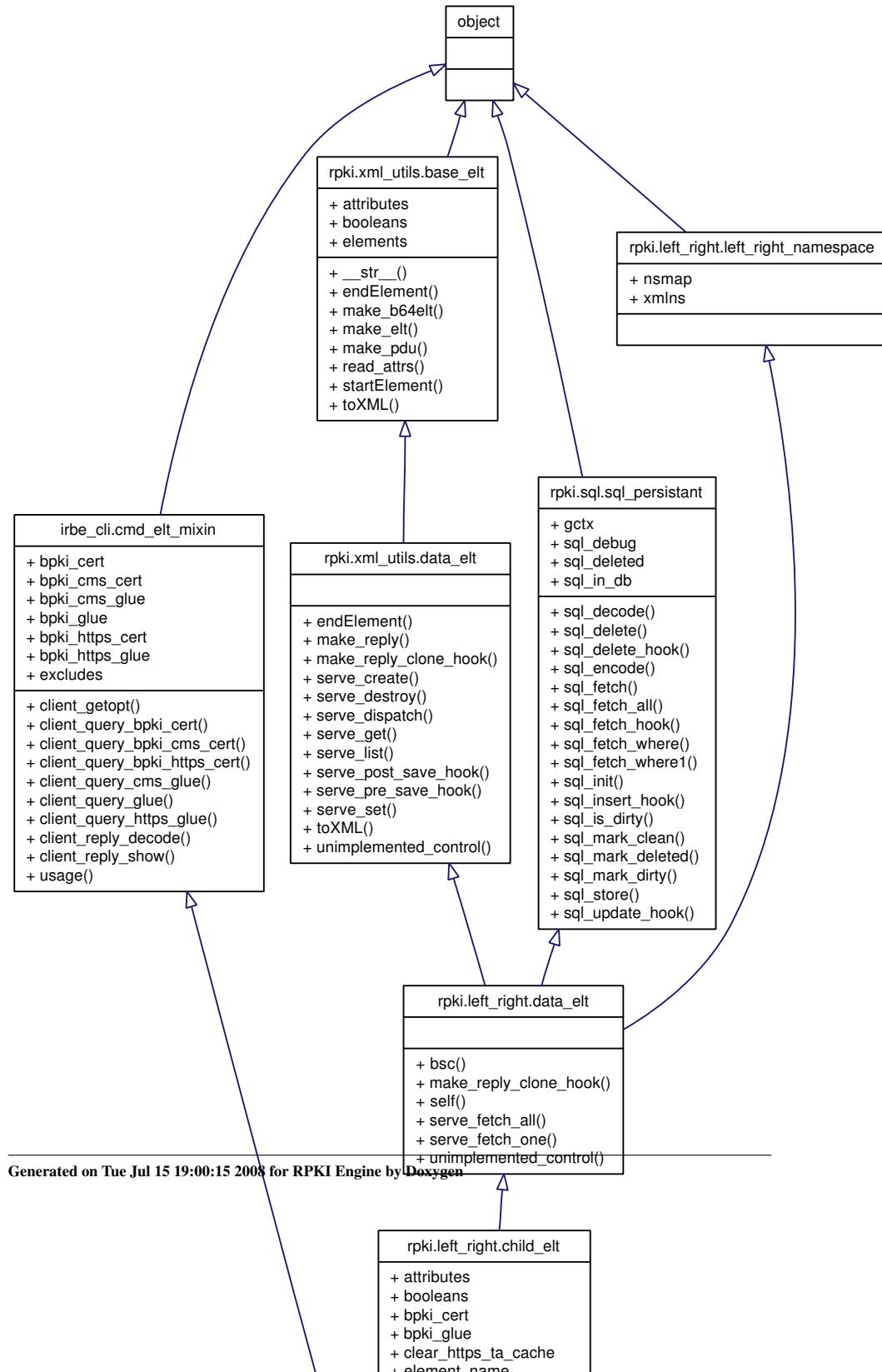
Definition at line 180 of file [irbe_cli.py](#).

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.7 irbe_cli.child_elt Class Reference

Inheritance diagram for irbe_cli.child_elt:



3.7.1 Detailed Description

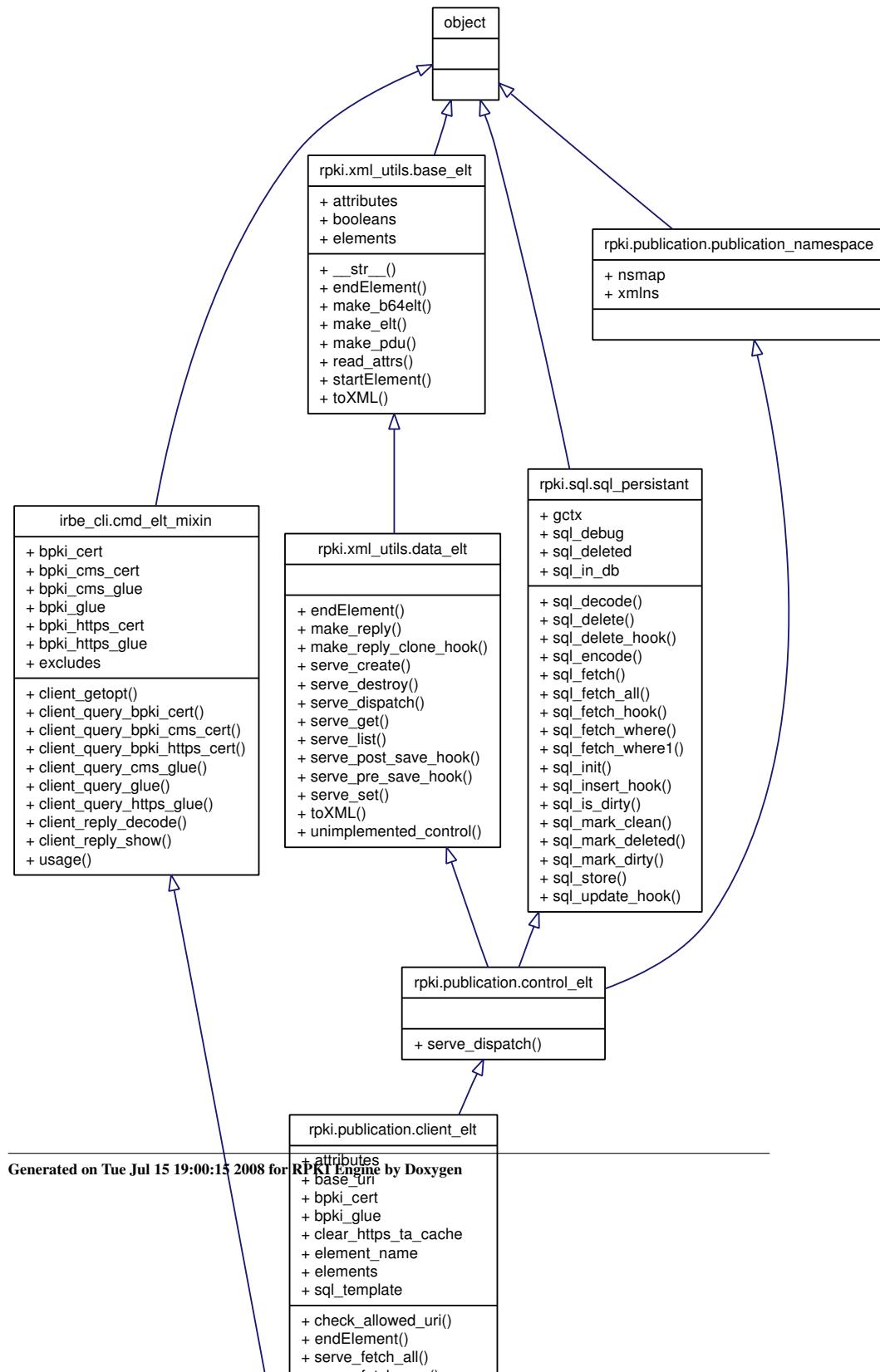
Definition at line 139 of file `irbe_cli.py`.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.8 irbe_cli.client_elt Class Reference

Inheritance diagram for irbe_cli.client_elt:



3.8.1 Detailed Description

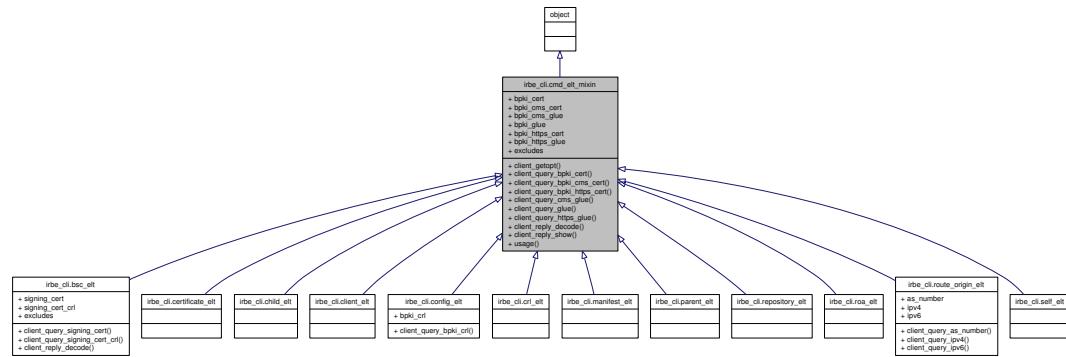
Definition at line 177 of file irbe_cli.py.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.9 irbe_cli.cmd_elt_mixin Class Reference

Inheritance diagram for irbe_cli.cmd_elt_mixin:



Public Member Functions

- def [client_getopt](#)
- def [client_query_bpki_cert](#)
- def [client_query_bpki_cms_cert](#)
- def [client_query_bpki_https_cert](#)
- def [client_query_cms_glue](#)
- def [client_query_glue](#)
- def [client_query_https_glue](#)
- def [client_reply_decode](#)
- def [client_reply_show](#)
- def [usage](#)

Public Attributes

- [bpki_cert](#)
- [bpki_cms_cert](#)
- [bpki_cms_glue](#)

- [bpki_glue](#)
- [bpki_https_cert](#)
- [bpki_https_glue](#)

Static Public Attributes

- tuple `excludes` = ()

XML attributes and elements that should not be allowed as command line arguments.

3.9.1 Detailed Description

Protocol mix-in for command line client element PDUs.

Definition at line 35 of file irbe_cli.py.

3.9.2 Member Function Documentation

3.9.2.1 def irbe_cli.cmd_elt_mixin.client_getopt (self, argv)

Parse options for this class.

Definition at line 55 of file irbe_cli.py.

3.9.2.2 def irbe_cli.cmd_elt_mixin.client_query_bpki_cert (self, arg)

Special handler for --bpki_cert option.

Definition at line 70 of file irbe_cli.py.

3.9.2.3 def irbe_cli.cmd_elt_mixin.client_query_bpki_cms_cert (self, arg)

Special handler for --bpki_cms_cert option.

Definition at line 78 of file irbe_cli.py.

3.9.2.4 def irbe_cli.cmd_elt_mixin.client_query_bpki_https_cert (self, arg)

Special handler for --bpki_https_cert option.

Definition at line 86 of file irbe_cli.py.

3.9.2.5 `def irbe_cli.cmd_elt_mixin.client_query_cms_glue (self, arg)`

Special handler for --bpki_cms_glue option.

Definition at line 82 of file `irbe_cli.py`.

3.9.2.6 `def irbe_cli.cmd_elt_mixin.client_query_glue (self, arg)`

Special handler for --bpki_glue option.

Definition at line 74 of file `irbe_cli.py`.

3.9.2.7 `def irbe_cli.cmd_elt_mixin.client_query_https_glue (self, arg)`

Special handler for --bpki_https_glue option.

Definition at line 90 of file `irbe_cli.py`.

3.9.2.8 `def irbe_cli.cmd_elt_mixin.client_reply_decode (self)`

Reimplemented in [irbe_cli.bsc_elt](#).

Definition at line 94 of file `irbe_cli.py`.

3.9.2.9 `def irbe_cli.cmd_elt_mixin.client_reply_show (self)`

Definition at line 97 of file `irbe_cli.py`.

3.9.2.10 `def irbe_cli.cmd_elt_mixin.usage (cls)`

Generate usage message for this PDU.

Definition at line 46 of file `irbe_cli.py`.

3.9.3 Member Data Documentation**3.9.3.1 `irbe_cli.cmd_elt_mixin_bpki_cert`**

Definition at line 72 of file `irbe_cli.py`.

3.9.3.2 `irbe_cli.cmd_elt_mixin_bpki_cms_cert`

Definition at line 80 of file `irbe_cli.py`.

3.9.3.3 irbe_cli.cmd_elt_mixin.bpk_i_cms_glue

Definition at line 84 of file irbe_cli.py.

3.9.3.4 irbe_cli.cmd_elt_mixin.bpk_i_glue

Definition at line 76 of file irbe_cli.py.

3.9.3.5 irbe_cli.cmd_elt_mixin.bpk_i_https_cert

Definition at line 88 of file irbe_cli.py.

3.9.3.6 irbe_cli.cmd_elt_mixin.bpk_i_https_glue

Definition at line 92 of file irbe_cli.py.

3.9.3.7 irbe_cli.cmd_elt_mixin::excludes = () [static]

XML attributes and elements that should not be allowed as command line arguments.

At the moment the only such is the bsc.pkcs10_request sub-element, but writing this generally is no harder than handling that one special case.

Reimplemented in [irbe_cli.bsc_elt](#).

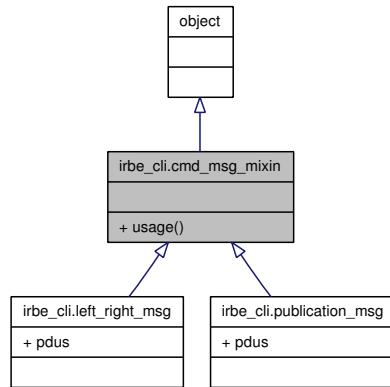
Definition at line 43 of file irbe_cli.py.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.10 irbe_cli.cmd_msg_mixin Class Reference

Inheritance diagram for irbe_cli.cmd_msg_mixin:



Public Member Functions

- def [usage](#)

3.10.1 Detailed Description

Protocol mix-in for command line client message PDUs.

Definition at line 103 of file [irbe_cli.py](#).

3.10.2 Member Function Documentation

3.10.2.1 def [irbe_cli.cmd_msg_mixin.usage](#) (*cls*)

Generate usage message for this PDU.

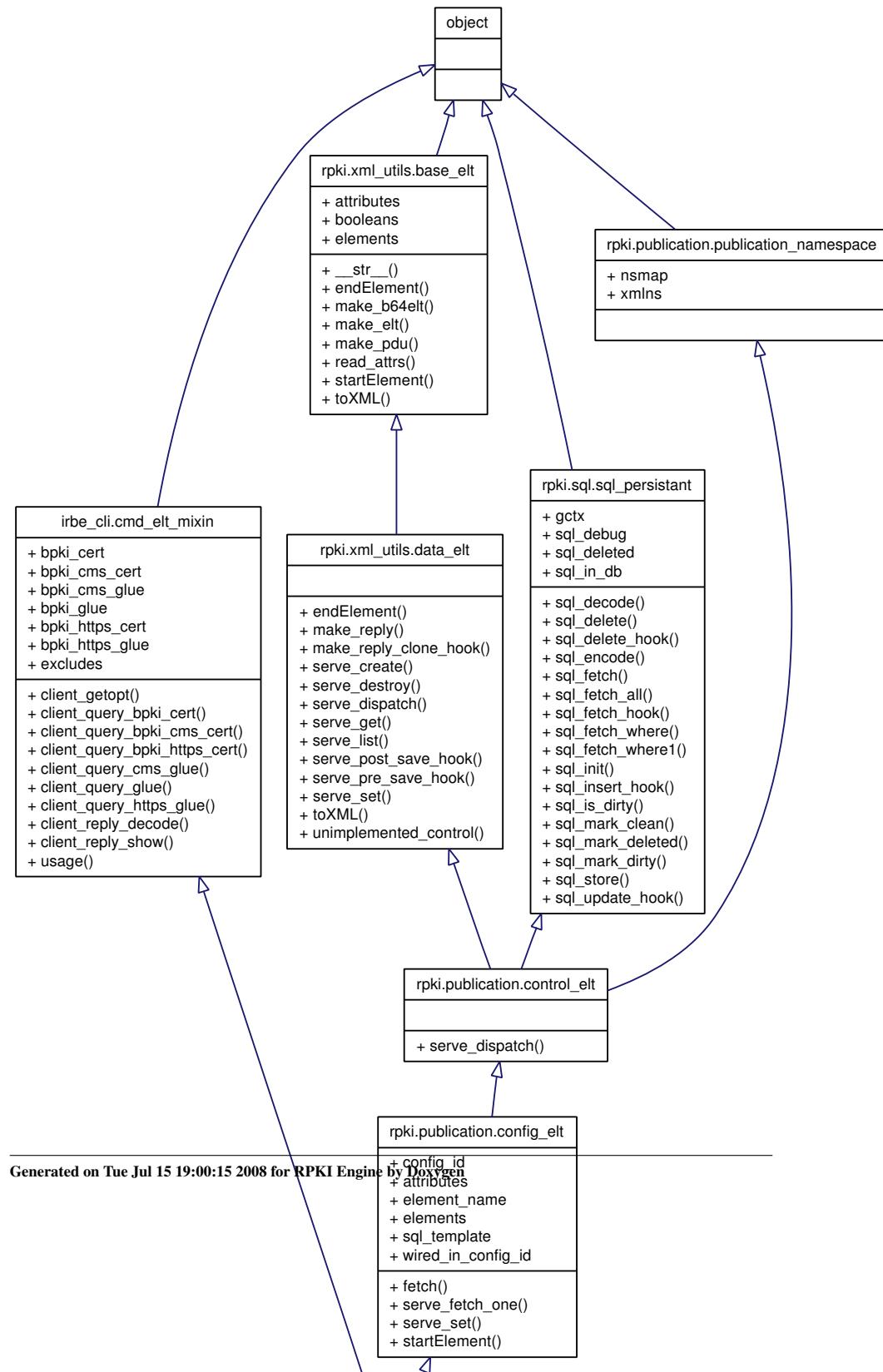
Definition at line 107 of file [irbe_cli.py](#).

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.11 irbe_cli.config_elt Class Reference

Inheritance diagram for irbe_cli.config_elt:



Public Member Functions

- def [client_query_bpki_crl](#)

Public Attributes

- [bpki_crl](#)

3.11.1 Detailed Description

Definition at line 171 of file irbe_cli.py.

3.11.2 Member Function Documentation**3.11.2.1 def irbe_cli.config_elt.client_query_bpki_crl (self, arg)**

Special handler for --bpki_crl option.

Definition at line 173 of file irbe_cli.py.

3.11.3 Member Data Documentation**3.11.3.1 irbe_cli.config_elt.bpkicrl**

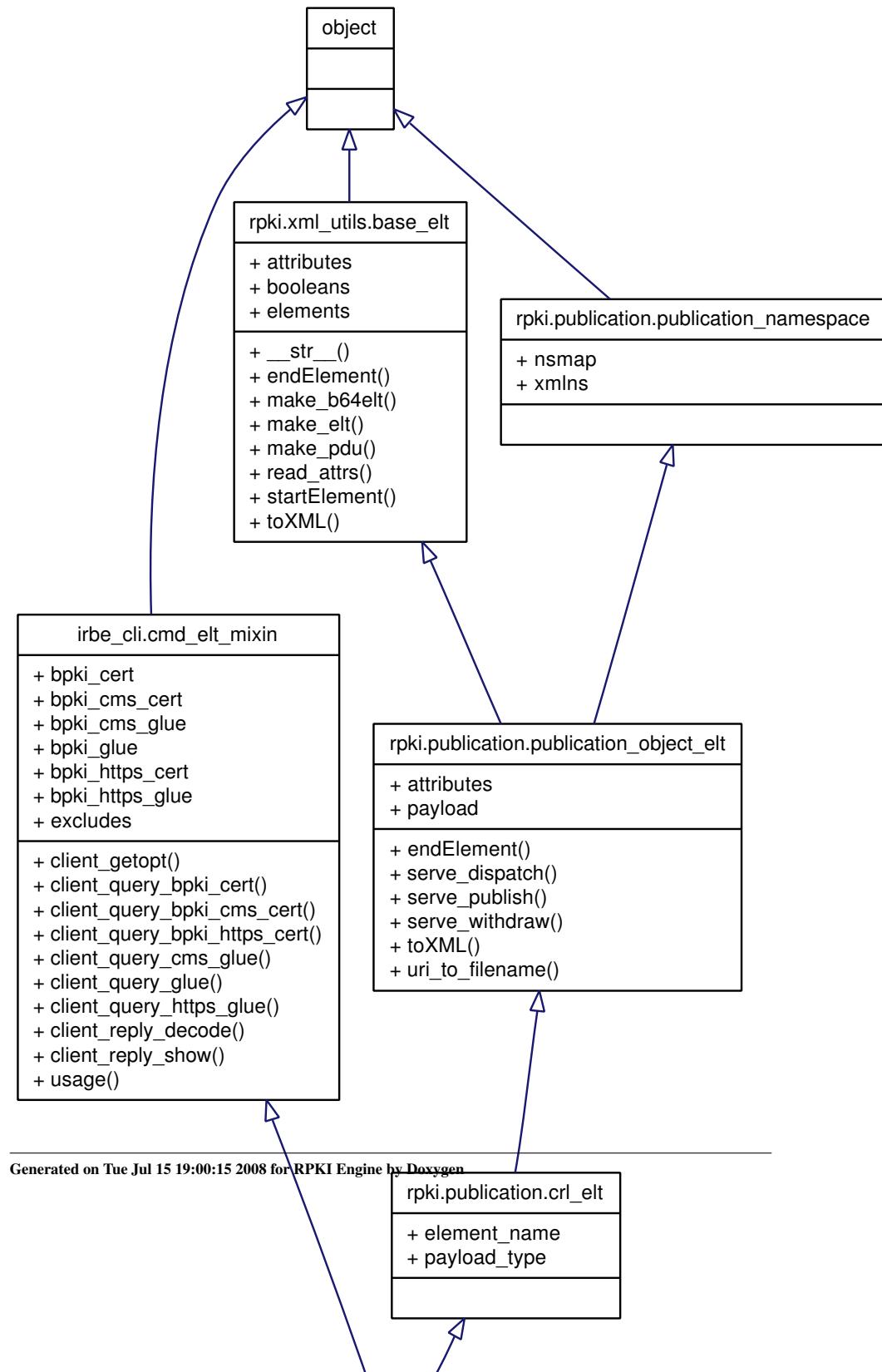
Definition at line 175 of file irbe_cli.py.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.12 irbe_cli.crl_elt Class Reference

Inheritance diagram for irbe_cli.crl_elt:



3.12.1 Detailed Description

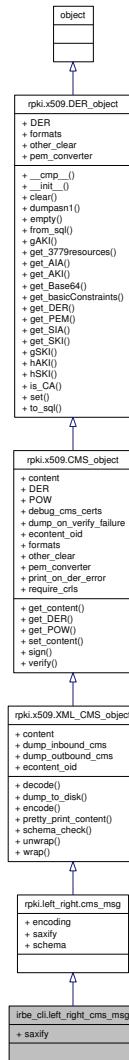
Definition at line 183 of file [irbe_cli.py](#).

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.13 irbe_cli.left_right_cms_msg Class Reference

Inheritance diagram for irbe_cli.left_right_cms_msg:



Static Public Attributes

- `saxify` = `left_right_sax_handler.saxify`

3.13.1 Detailed Description

Definition at line 166 of file irbe_cli.py.

3.13.2 Member Data Documentation

3.13.2.1 irbe_cli.left_right_cms_msg.saxify = left_right_sax_handler.saxify [static]

Reimplemented from [rpki.left_right.cms_msg](#).

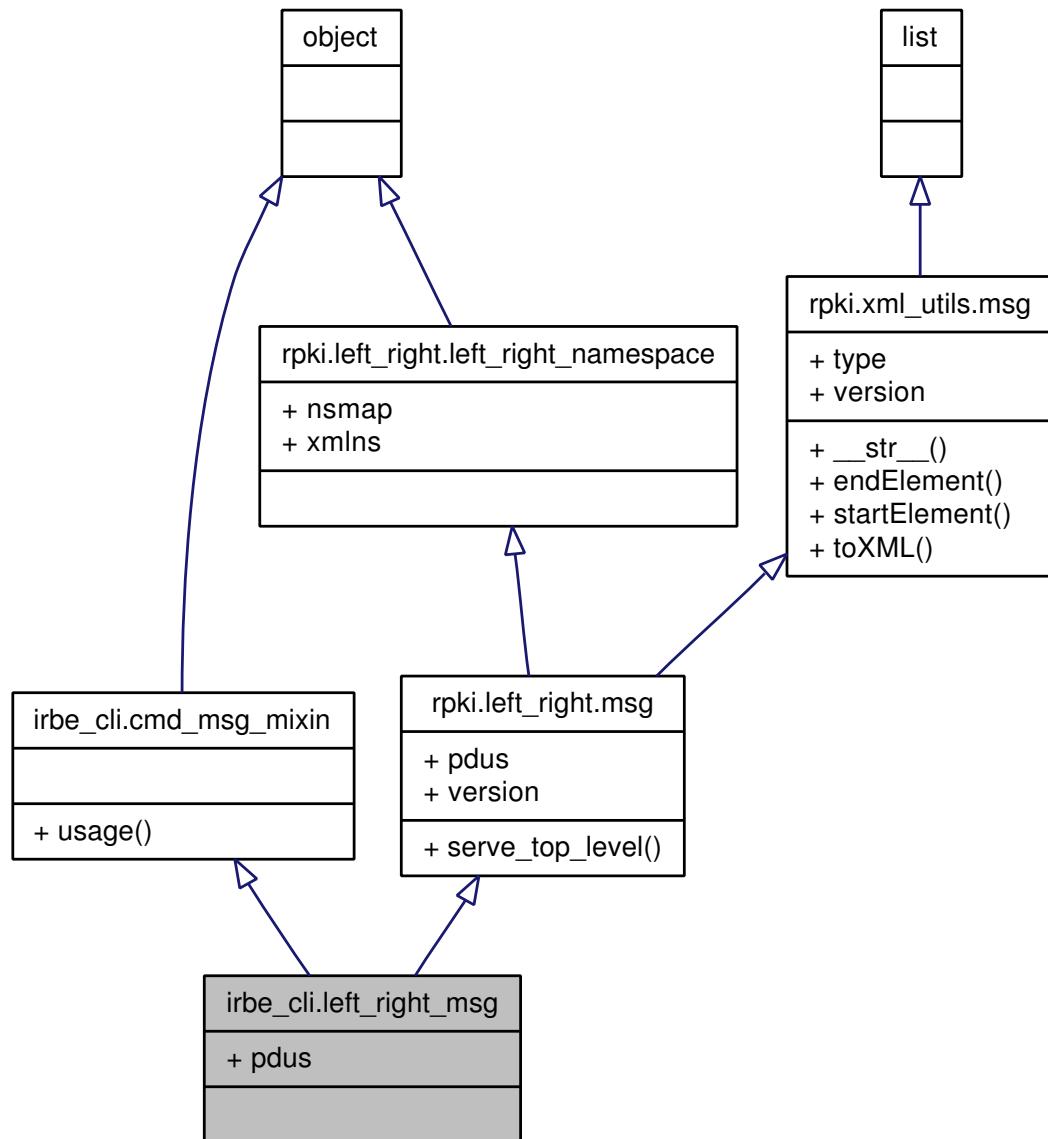
Definition at line 167 of file irbe_cli.py.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.14 irbe_cli.left_right_msg Class Reference

Inheritance diagram for irbe_cli.left_right_msg:



Static Public Attributes

- tuple `pdus`

Dispatch table of PDUs for this protocol.

3.14.1 Detailed Description

Definition at line 159 of file irbe_cli.py.

3.14.2 Member Data Documentation

3.14.2.1 tuple irbe_cli.left_right_msg.pdus [static]

Initial value:

```
dict((x.element_name, x)
     for x in (self_elt, bsc_elt, parent_elt, child_elt, repository_elt, route_origin_elt))
```

Dispatch table of PDUs for this protocol.

Reimplemented from [rpki.left_right.msg](#).

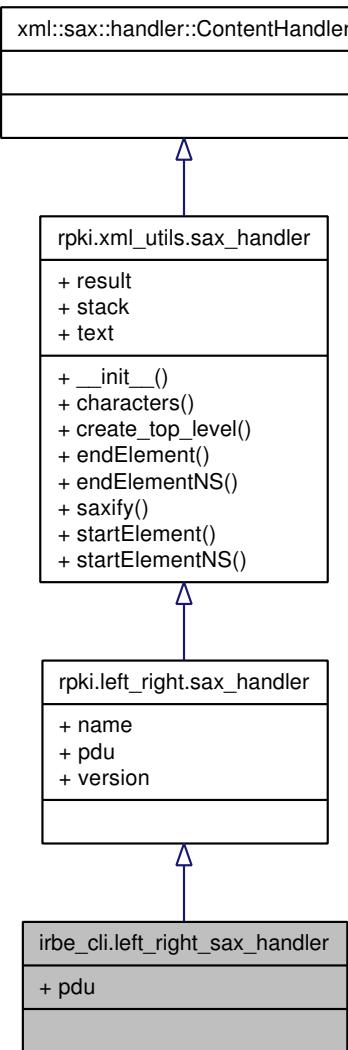
Definition at line 160 of file irbe_cli.py.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.15 irbe_cli.left_right_sax_handler Class Reference

Inheritance diagram for irbe_cli.left_right_sax_handler:



Static Public Attributes

- `pdu = left_right_msg`

3.15.1 Detailed Description

Definition at line 163 of file `irbe_cli.py`.

3.15.2 Member Data Documentation

3.15.2.1 `irbe_cli.left_right_sax_handler.pdu = left_right_msg` [static]

Reimplemented from `rpkidb.left_right.sax_handler`.

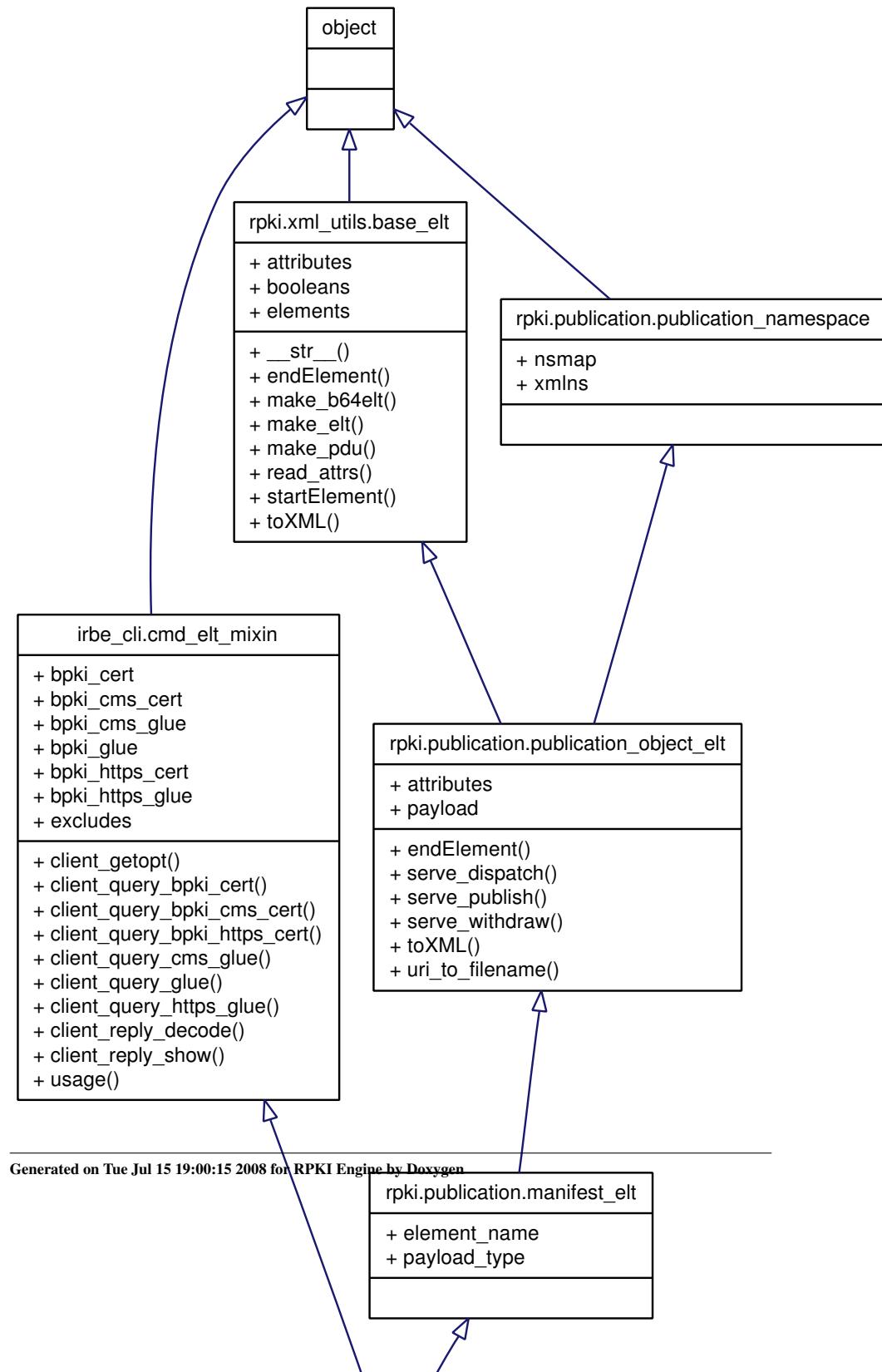
Definition at line 164 of file `irbe_cli.py`.

The documentation for this class was generated from the following file:

- `irbe_cli.py` (1995)

3.16 irbe_cli.manifest_elt Class Reference

Inheritance diagram for irbe_cli.manifest_elt:



3.16.1 Detailed Description

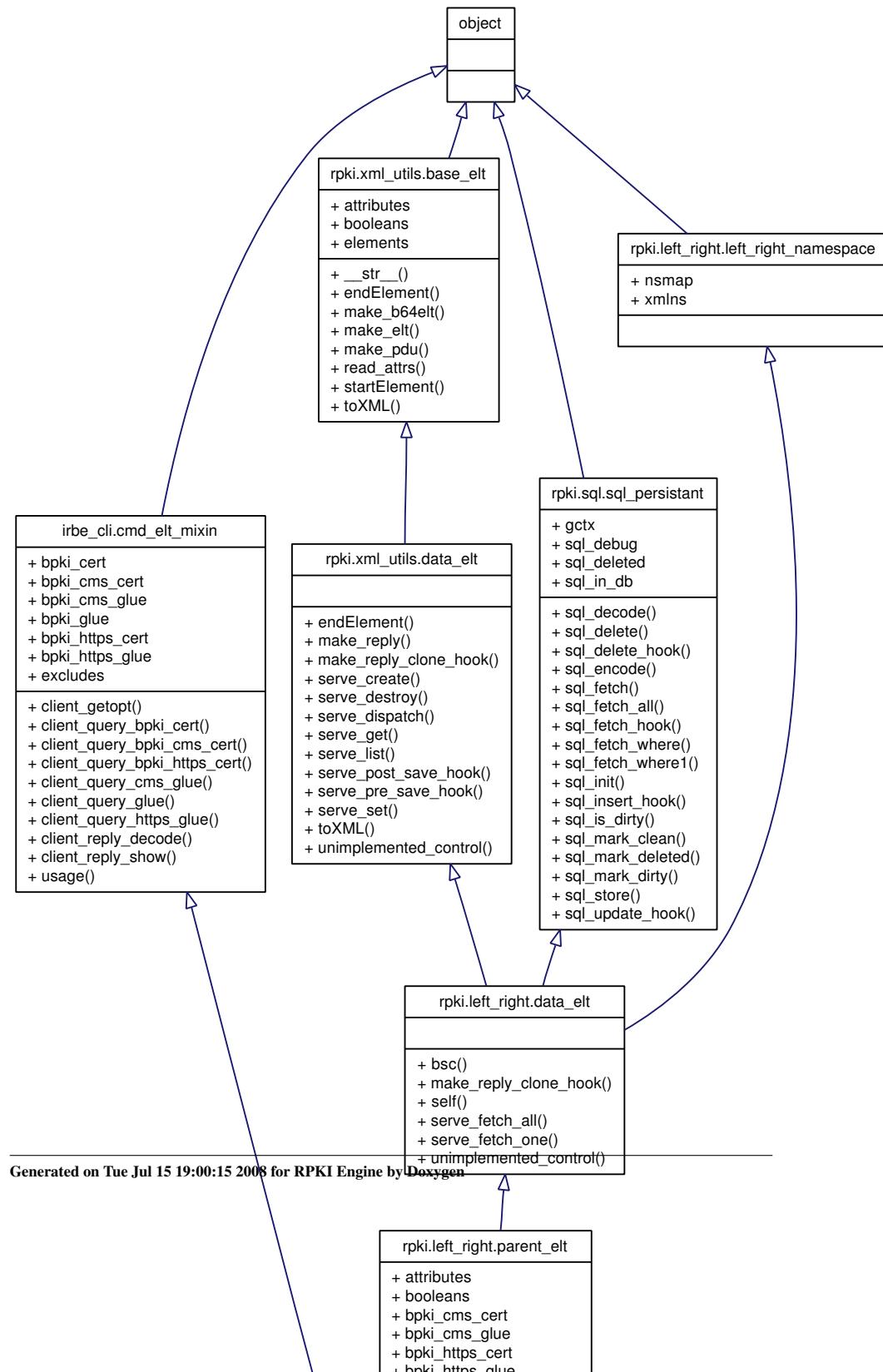
Definition at line 186 of file [irbe_cli.py](#).

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.17 irbe_cli.parent_elt Class Reference

Inheritance diagram for irbe_cli.parent_elt:



3.17.1 Detailed Description

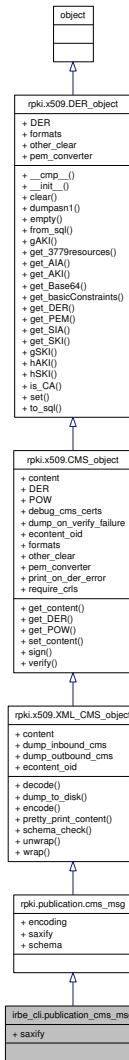
Definition at line 136 of file `irbe_cli.py`.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.18 irbe_cli.publication_cms_msg Class Reference

Inheritance diagram for irbe_cli.publication_cms_msg:



Static Public Attributes

- **saxify** = `publication_sax_handler.saxify`

3.18.1 Detailed Description

Definition at line 199 of file irbe_cli.py.

3.18.2 Member Data Documentation

3.18.2.1 irbe_cli.publication_cms_msg.saxify = publication_sax_handler.saxify [static]

Reimplemented from [rpki.publication.cms_msg](#).

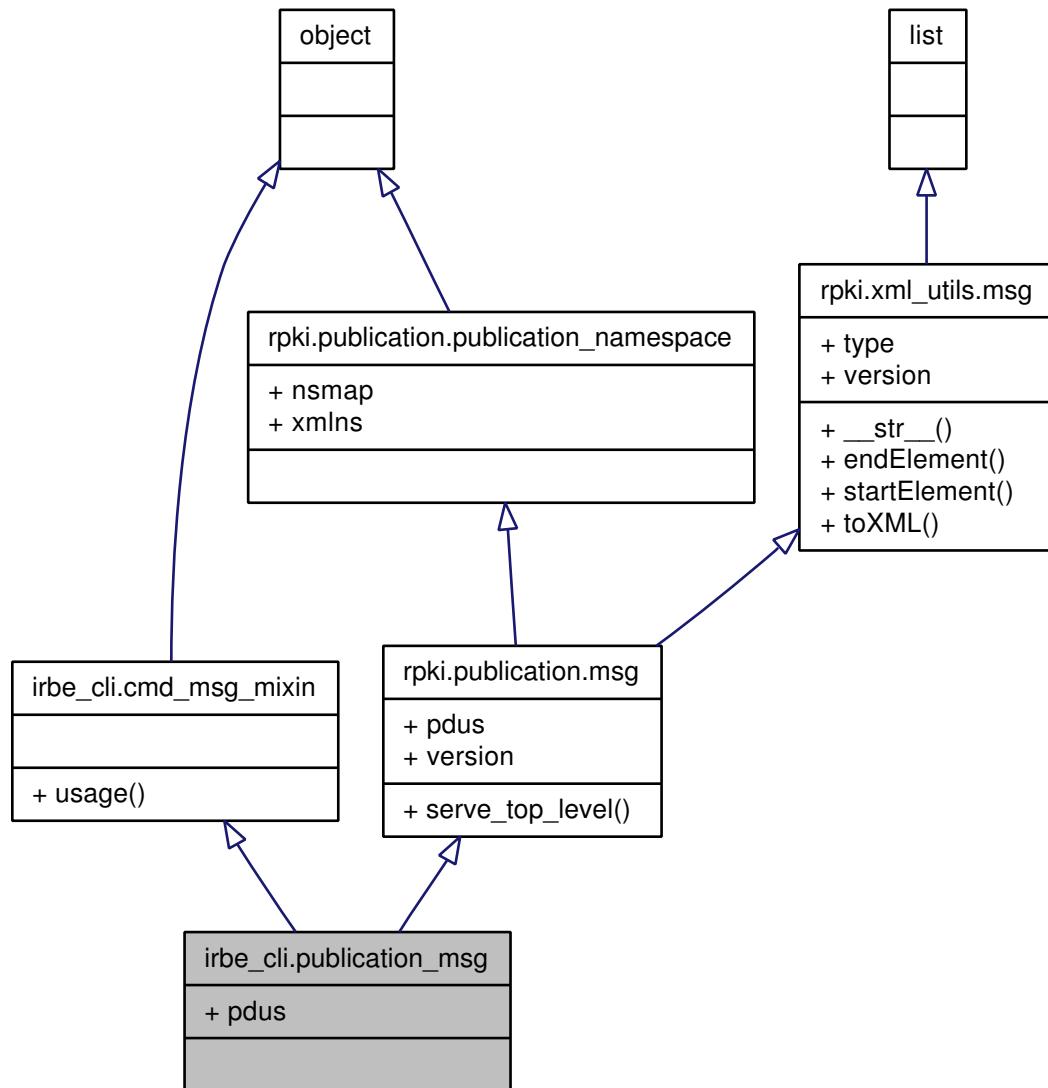
Definition at line 200 of file irbe_cli.py.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.19 irbe_cli.publication_msg Class Reference

Inheritance diagram for irbe_cli.publication_msg:



Static Public Attributes

- tuple `pdus`
Dispatch table of PDUs for this protocol.

3.19.1 Detailed Description

Definition at line 192 of file irbe_cli.py.

3.19.2 Member Data Documentation

3.19.2.1 tuple irbe_cli.publication_msg.pdus [static]

Initial value:

```
dict((x.element_name, x)
     for x in (config_elt, client_elt, certificate_elt, crl_elt, manifest_elt, roa_elt))
```

Dispatch table of PDUs for this protocol.

Reimplemented from [rpki.publication.msg](#).

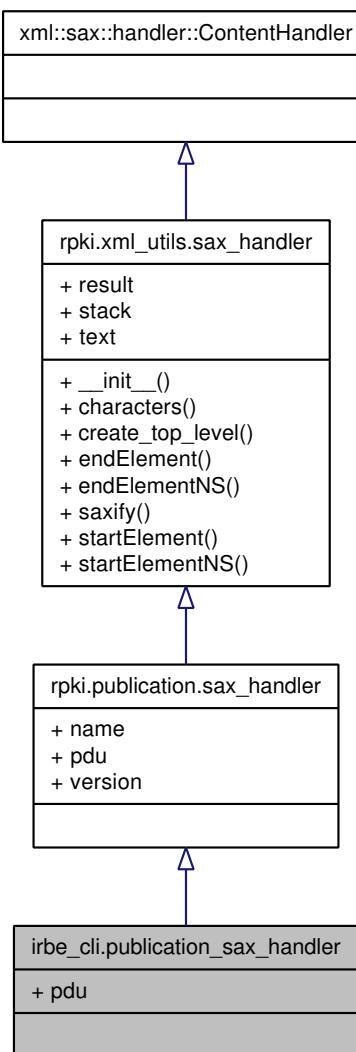
Definition at line 193 of file irbe_cli.py.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.20 irbe_cli.publication_sax_handler Class Reference

Inheritance diagram for irbe_cli.publication_sax_handler:



Static Public Attributes

- `pdu = publication_msg`

3.20.1 Detailed Description

Definition at line 196 of file `irbe_cli.py`.

3.20.2 Member Data Documentation

3.20.2.1 `irbe_cli.publication_sax_handler.pdu = publication_msg [static]`

Reimplemented from [rpki.publication.sax_handler](#).

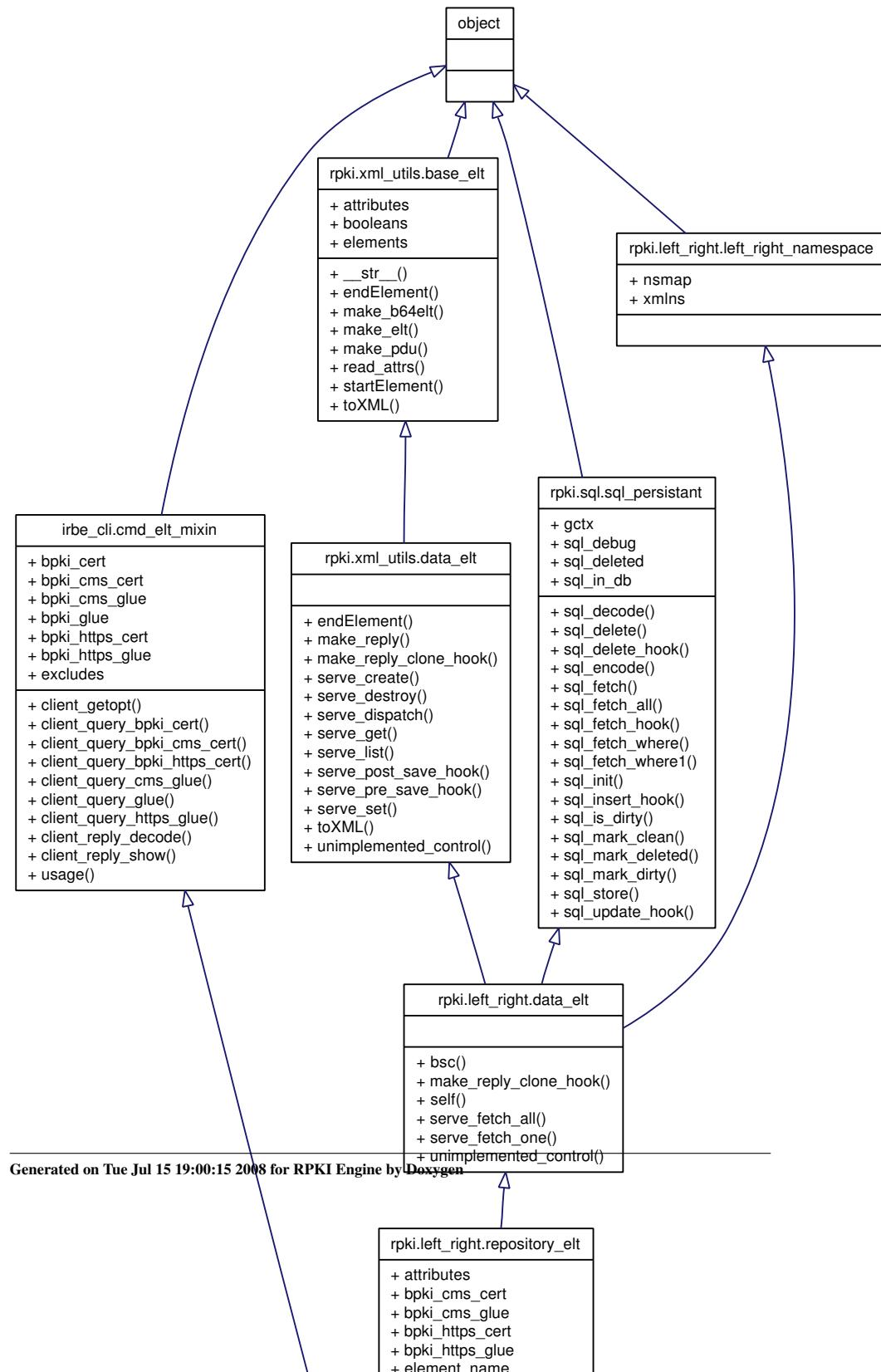
Definition at line 197 of file `irbe_cli.py`.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.21 irbe_cli.repository_elt Class Reference

Inheritance diagram for irbe_cli.repository_elt:



3.21.1 Detailed Description

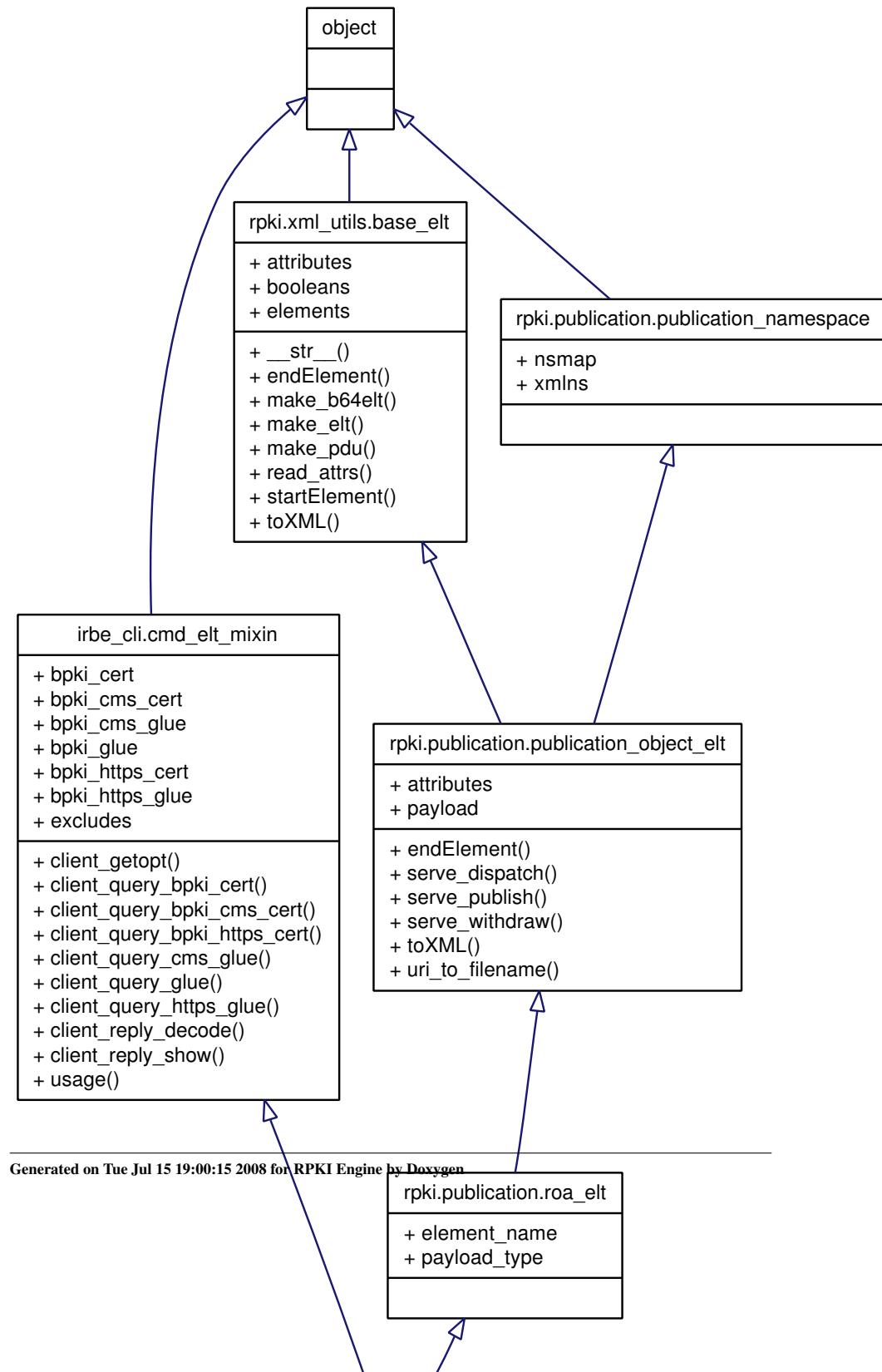
Definition at line 142 of file `irbe_cli.py`.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.22 irbe_cli.roa_elt Class Reference

Inheritance diagram for irbe_cli.roa_elt:



3.22.1 Detailed Description

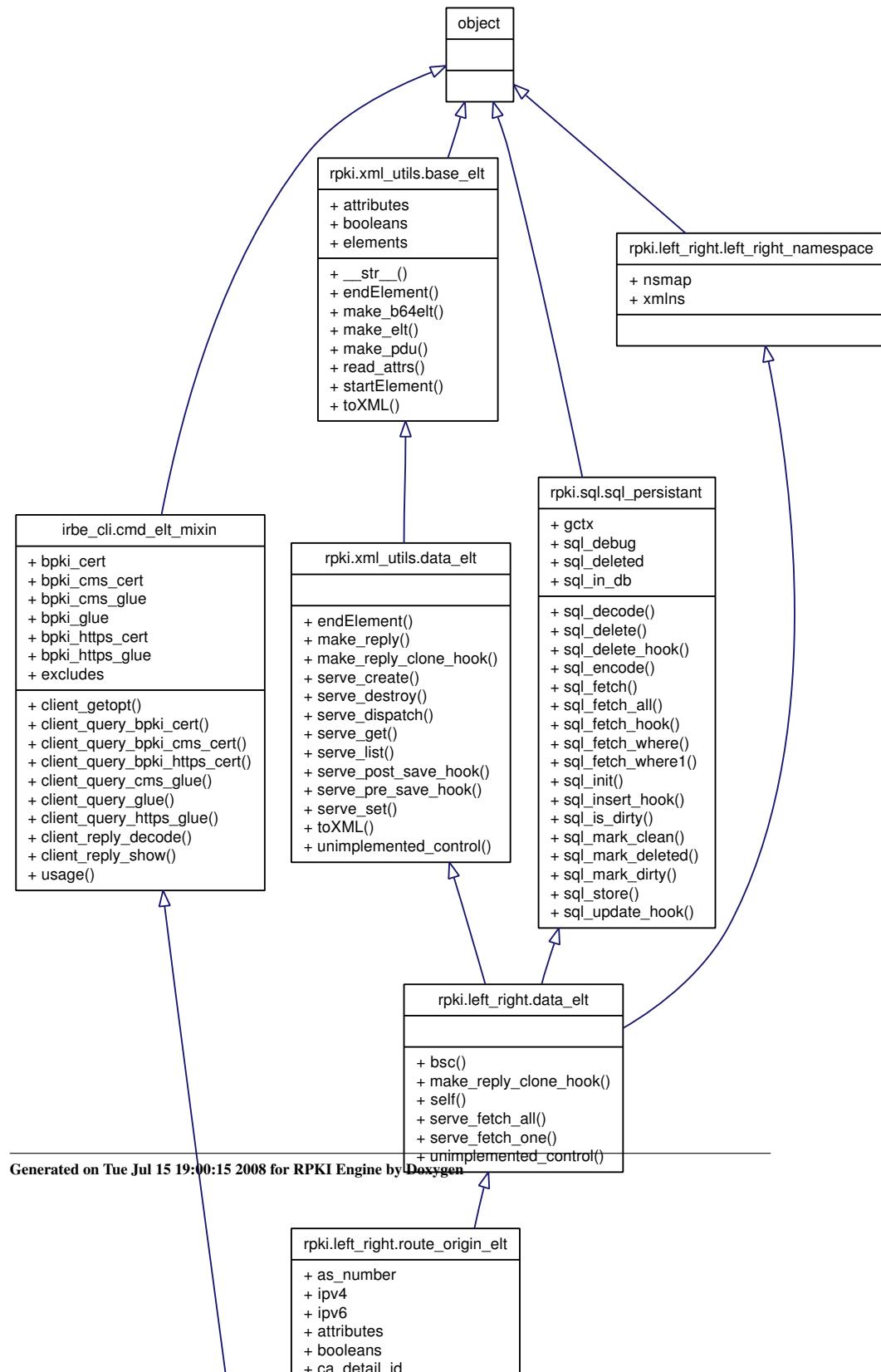
Definition at line 189 of file [irbe_cli.py](#).

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.23 irbe_cli.route_origin_elt Class Reference

Inheritance diagram for irbe_cli.route_origin_elt:



Public Member Functions

- def [client_query_as_number](#)
- def [client_query_ipv4](#)
- def [client_query_ipv6](#)

Public Attributes

- [as_number](#)
- [ipv4](#)
- [ipv6](#)

3.23.1 Detailed Description

Definition at line 145 of file irbe_cli.py.

3.23.2 Member Function Documentation

3.23.2.1 def irbe_cli.route_origin_elt.client_query_as_number (*self*, *arg*)

Handle autonomous sequence numbers.

Definition at line 147 of file irbe_cli.py.

3.23.2.2 def irbe_cli.route_origin_elt.client_query_ipv4 (*self*, *arg*)

Handle IPv4 addresses.

Definition at line 151 of file irbe_cli.py.

3.23.2.3 def irbe_cli.route_origin_elt.client_query_ipv6 (*self*, *arg*)

Handle IPv6 addresses.

Definition at line 155 of file irbe_cli.py.

3.23.3 Member Data Documentation

3.23.3.1 irbe_cli.route_origin_elt.as_number

Reimplemented from [rpki.left_right.route_origin_elt](#).

Definition at line 149 of file irbe_cli.py.

3.23.3.2 `irbe_cli.route_origin_elt.ipv4`

Reimplemented from [rpki.left_right.route_origin_elt](#).

Definition at line 153 of file `irbe_cli.py`.

3.23.3.3 `irbe_cli.route_origin_elt.ipv6`

Reimplemented from [rpki.left_right.route_origin_elt](#).

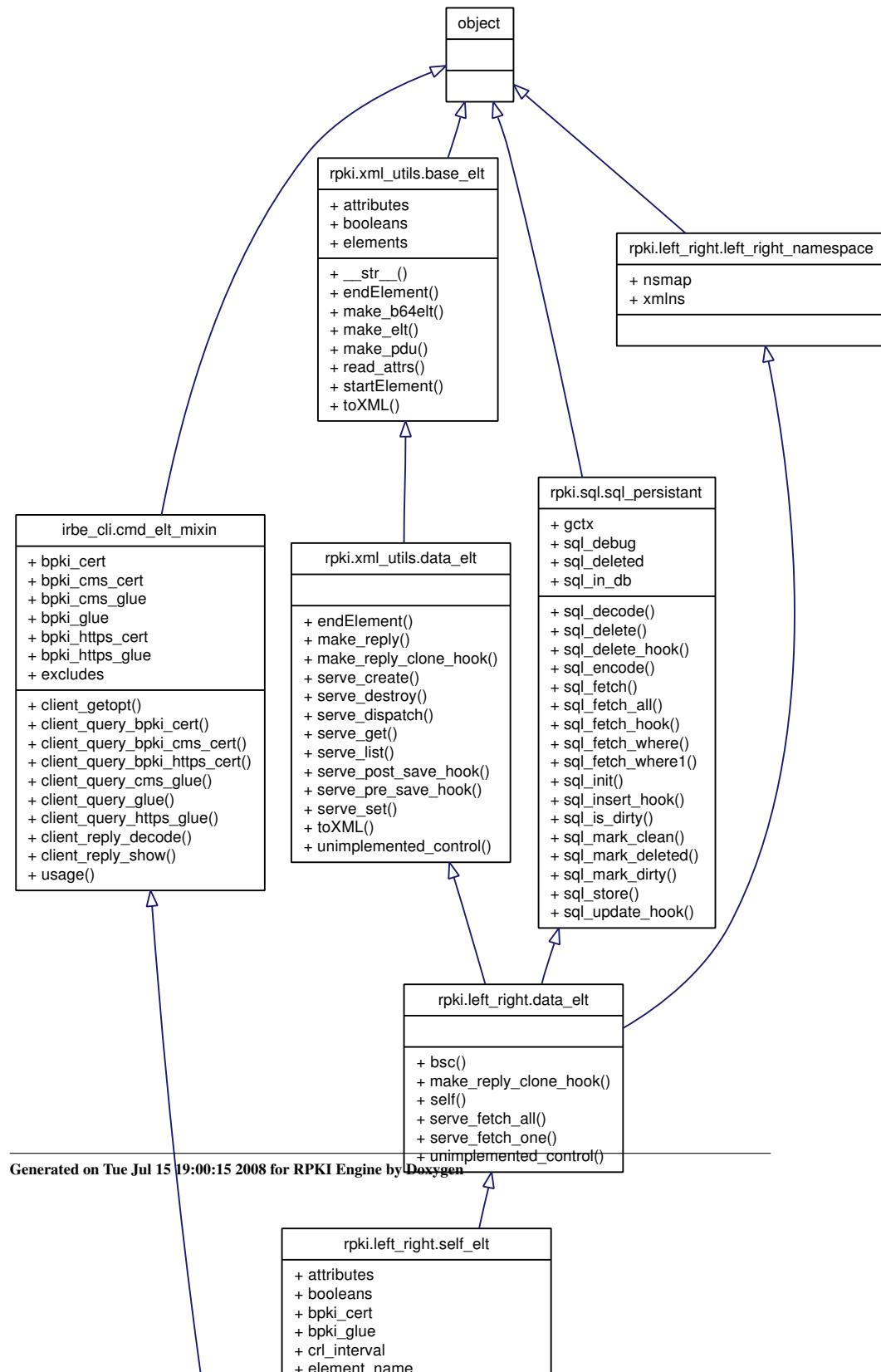
Definition at line 157 of file `irbe_cli.py`.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.24 irbe_cli.self_elt Class Reference

Inheritance diagram for irbe_cli.self_elt:



3.24.1 Detailed Description

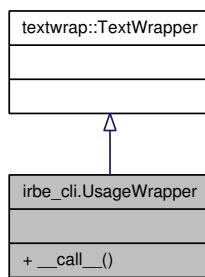
Definition at line 114 of file irbe_cli.py.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.25 irbe_cli.UsageWrapper Class Reference

Inheritance diagram for irbe_cli.UsageWrapper:



Public Member Functions

- [def __call__](#)

3.25.1 Detailed Description

Call interface around Python `textwrap.Textwrapper` class.

Definition at line 26 of file irbe_cli.py.

3.25.2 Member Function Documentation

3.25.2.1 def irbe_cli.UsageWrapper.__call__ (self, args)

Format arguments, with TextWrapper indentation.

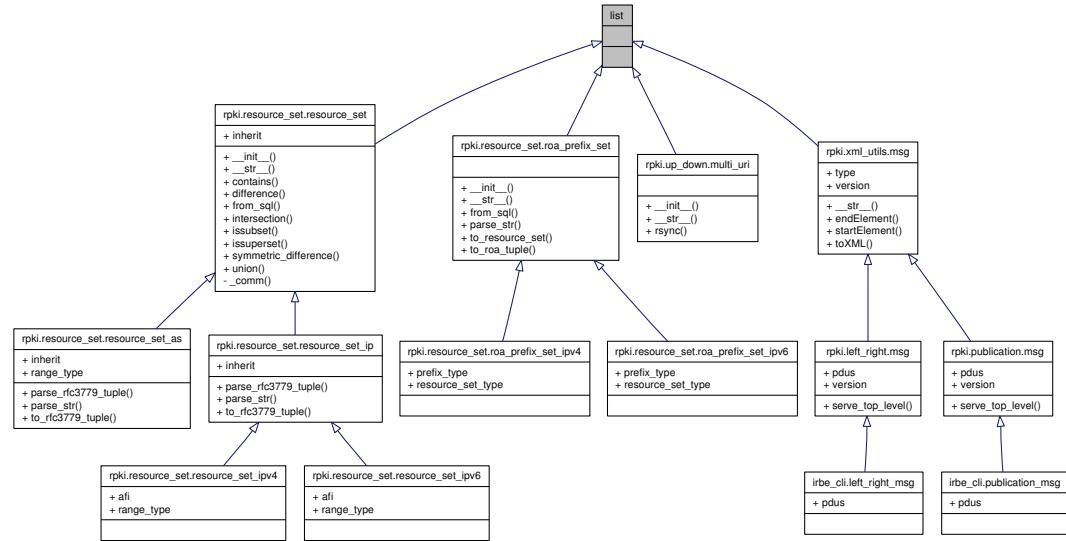
Definition at line 29 of file irbe_cli.py.

The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.26 list Class Reference

Inheritance diagram for list:

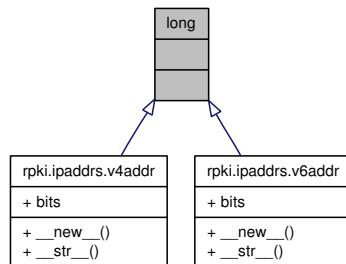


The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.27 long Class Reference

Inheritance diagram for long:

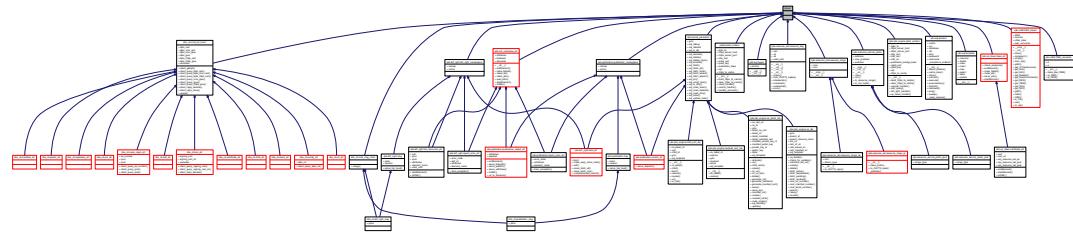


The documentation for this class was generated from the following file:

- [ipaddrs.py \(1873\)](#)

3.28 object Class Reference

Inheritance diagram for object:

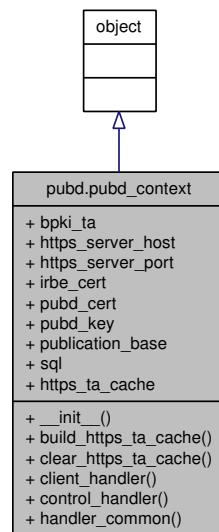


The documentation for this class was generated from the following file:

- [x509.py \(1916\)](#)

3.29 pubd.pubd_context Class Reference

Inheritance diagram for pubd.pubd_context:



Public Member Functions

- def [__init__](#)

- def [build_https_ta_cache](#)
- def [clear_https_ta_cache](#)
- def [client_handler](#)
- def [control_handler](#)
- def [handler_common](#)

Public Attributes

- [bpki_ta](#)
- [https_server_host](#)
- [https_server_port](#)
- [irbe_cert](#)
- [pubd_cert](#)
- [pubd_key](#)
- [publication_base](#)
- [sql](#)

Static Public Attributes

- [https_ta_cache](#) = None

HTTPS trust anchor cache, to avoid regenerating it for every TLS connection.

3.29.1 Detailed Description

A container for various pubd parameters.

Definition at line 32 of file pubd.py.

3.29.2 Member Function Documentation

3.29.2.1 def pubd.pubd_context.__init__ (*self*, *cfg*)

Definition at line 35 of file pubd.py.

3.29.2.2 def pubd.pubd_context.build_https_ta_cache (*self*)

Build dynamic TLS trust anchors.

Definition at line 97 of file pubd.py.

3.29.2.3 def pubd.pubd_context.clear_https_ta_cache (self)

Clear dynamic TLS trust anchors.

Definition at line 90 of file pubd.py.

3.29.2.4 def pubd.pubd_context.client_handler (self, query, path)

Process one PDU from a client.

Definition at line 67 of file pubd.py.

3.29.2.5 def pubd.pubd_context.control_handler (self, query, path)

Process one PDU from the IRBE.

Definition at line 57 of file pubd.py.

3.29.2.6 def pubd.pubd_context.handler_common (self, query, client, certs, crl = None)

Common PDU handler code.

Definition at line 49 of file pubd.py.

3.29.3 Member Data Documentation**3.29.3.1 pubd.pubd_context.bpk_i_ta**

Definition at line 39 of file pubd.py.

3.29.3.2 pubd.pubd_context.https_server_host

Definition at line 44 of file pubd.py.

3.29.3.3 pubd.pubd_context.https_server_port

Definition at line 45 of file pubd.py.

3.29.3.4 pubd.pubd_context::https_ta_cache = None [static]

HTTPS trust anchor cache, to avoid regenerating it for every TLS connection.

Definition at line 88 of file pubd.py.

3.29.3.5 pubd.pubd_context.irbe_cert

Definition at line 40 of file pubd.py.

3.29.3.6 pubd.pubd_context.pubd_cert

Definition at line 41 of file pubd.py.

3.29.3.7 pubd.pubd_context.pubd_key

Definition at line 42 of file pubd.py.

3.29.3.8 pubd.pubd_context.publication_base

Definition at line 47 of file pubd.py.

3.29.3.9 pubd.pubd_context.sql

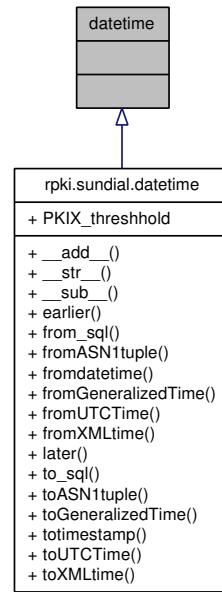
Definition at line 37 of file pubd.py.

The documentation for this class was generated from the following file:

- [pubd.py \(1880\)](#)

3.30 datetime Class Reference

Inheritance diagram for datetime:

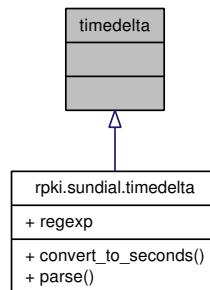


The documentation for this class was generated from the following file:

- [sundial.py \(1915\)](#)

3.31 timedelta Class Reference

Inheritance diagram for timedelta:

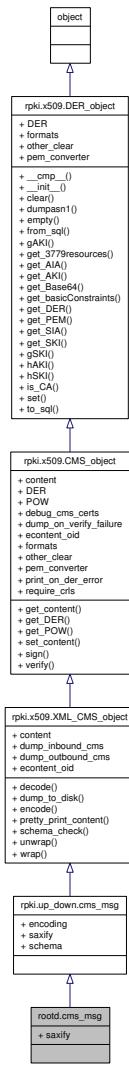


The documentation for this class was generated from the following file:

- [sundial.py \(1915\)](#)

3.32 rootd.cms_msg Class Reference

Inheritance diagram for rootd.cms_msg:



Static Public Attributes

- [saxify](#) = sax_handler.saxify

3.32.1 Detailed Description

Definition at line 166 of file roottd.py.

3.32.2 Member Data Documentation**3.32.2.1 roottd.cms_msg.saxify = sax_handler.saxify [static]**

Reimplemented from [rpki.up_down.cms_msg](#).

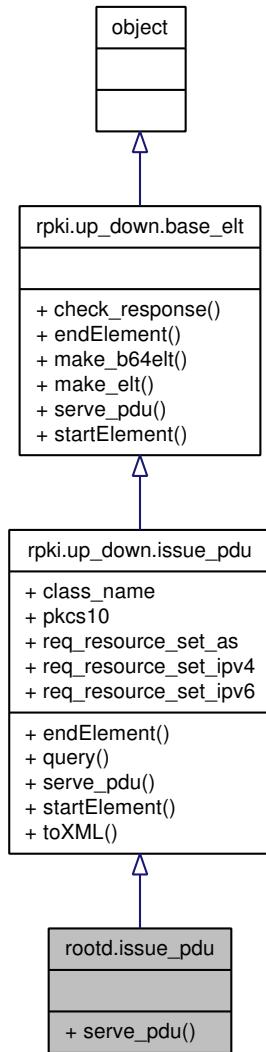
Definition at line 167 of file roottd.py.

The documentation for this class was generated from the following file:

- [roottd.py \(1974\)](#)

3.33 rootd.issue_pdu Class Reference

Inheritance diagram for rootd.issue_pdu:



Public Member Functions

- def `serve_pdu`

3.33.1 Detailed Description

Definition at line 80 of file roottd.py.

3.33.2 Member Function Documentation

3.33.2.1 def roottd.issue_pdu.serve_pdu (*self*, *q_msg*, *r_msg*, *child*)

Serve one issue request PDU.

Reimplemented from [rpki.up_down.issue_pdu](#).

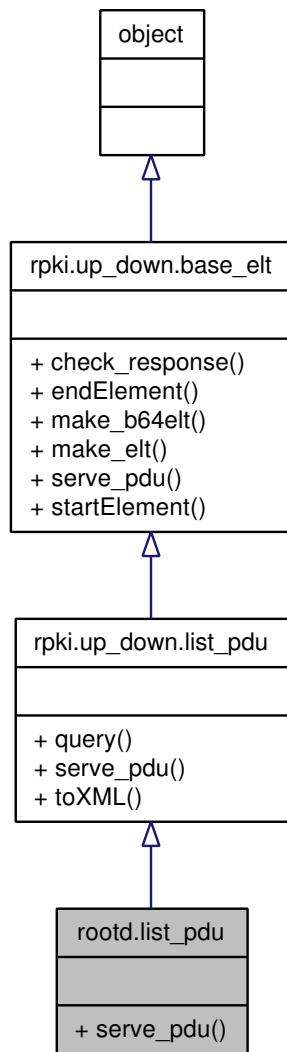
Definition at line 81 of file roottd.py.

The documentation for this class was generated from the following file:

- [roottd.py \(1974\)](#)

3.34 rootd.list_pdu Class Reference

Inheritance diagram for rootd.list_pdu:



Public Member Functions

- def [serve_pdu](#)

3.34.1 Detailed Description

Definition at line 75 of file rootd.py.

3.34.2 Member Function Documentation

3.34.2.1 def rootd.list_pdu.serve_pdu (*self*, *q_msg*, *r_msg*, *child*)

Serve one "list" PDU.

Reimplemented from [rpki.up_down.list_pdu](#).

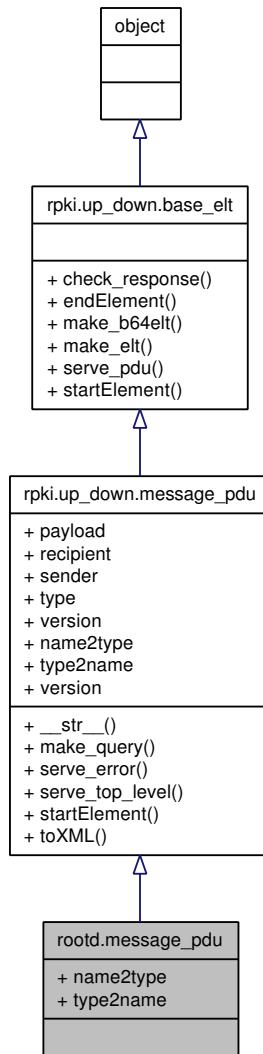
Definition at line 76 of file rootd.py.

The documentation for this class was generated from the following file:

- [rootd.py \(1974\)](#)

3.35 rootd.message_pdu Class Reference

Inheritance diagram for rootd.message_pdu:



Static Public Attributes

- dictionary `name2type`
- tuple `type2name` = `dict((v,k) for k,v in name2type.items())`

3.35.1 Detailed Description

Definition at line 152 of file rootd.py.

3.35.2 Member Data Documentation

3.35.2.1 dictionary `rootd.message_pdu.name2type` [static]

Initial value:

```
{  
    "list"          : list_pdu,  
    "list_response" : rpki.up_down.list_response_pdu,  
    "issue"         : issue_pdu,  
    "issue_response" : rpki.up_down.issue_response_pdu,  
    "revoke"        : revoke_pdu,  
    "revoke_response" : rpki.up_down.revoke_response_pdu,  
    "error_response" : rpki.up_down.error_response_pdu }
```

Reimplemented from [rpki.up_down.message_pdu](#).

Definition at line 153 of file rootd.py.

3.35.2.2 tuple `rootd.message_pdu.type2name` = dict((v,k) for k,v in name2type.items()) [static]

Reimplemented from [rpki.up_down.message_pdu](#).

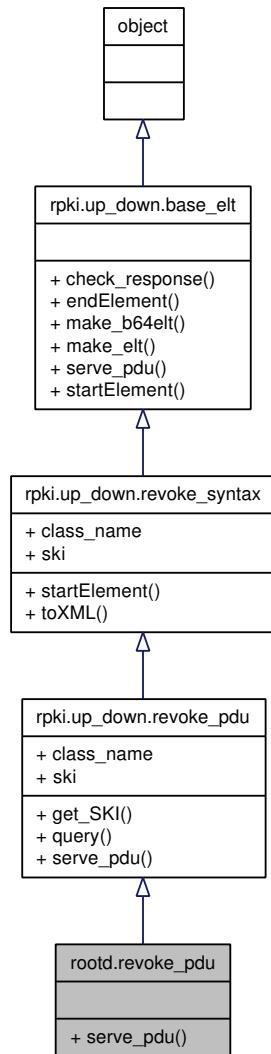
Definition at line 161 of file rootd.py.

The documentation for this class was generated from the following file:

- [rootd.py \(1974\)](#)

3.36 rootd.revocate_pdu Class Reference

Inheritance diagram for rootd.revocate_pdu:



Public Member Functions

- def [serve_pdu](#)

3.36.1 Detailed Description

Definition at line 142 of file roottd.py.

3.36.2 Member Function Documentation

3.36.2.1 def roottd.revocate_pdu (*self*, *q_msg*, *r_msg*, *child*)

Serve one revoke request PDU.

Reimplemented from [rpki.up_down.revocate_pdu](#).

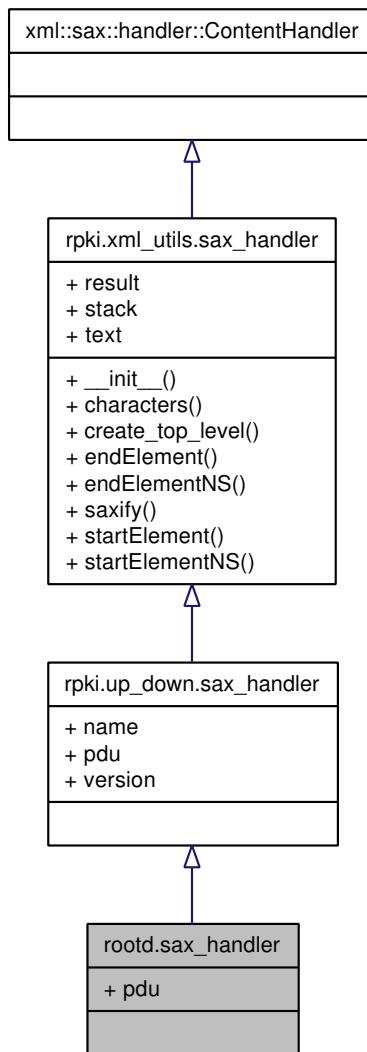
Definition at line 143 of file roottd.py.

The documentation for this class was generated from the following file:

- [roottd.py \(1974\)](#)

3.37 rootd.sax_handler Class Reference

Inheritance diagram for rootd.sax_handler:



Static Public Attributes

- `pdu = message_pdu`

3.37.1 Detailed Description

Definition at line 163 of file roott.py.

3.37.2 Member Data Documentation

3.37.2.1 `roott.sax_handler.pdu = message_pdu [static]`

Reimplemented from `rpkiconfig.up_down.sax_handler`.

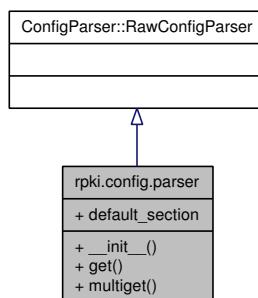
Definition at line 164 of file roott.py.

The documentation for this class was generated from the following file:

- [roott.py \(1974\)](#)

3.38 rpkiconfig.parser Class Reference

Inheritance diagram for rpkiconfig.parser:



Public Member Functions

- def `__init__`
- def `get`
- def `multiget`

Public Attributes

- `default_section`

3.38.1 Detailed Description

Definition at line 23 of file config.py.

3.38.2 Member Function Documentation

3.38.2.1 def rpkiconfig.parser.__init__ (*self*, *file* = None, *section* = None)

Initialize this parser.

Definition at line 25 of file config.py.

3.38.2.2 def rpkiconfig.parser.get (*self*, *option*, *default* = None, *section* = None)

Get an option, perhaps with a default value.

Definition at line 49 of file config.py.

3.38.2.3 def rpkiconfig.parser.multiget (*self*, *option*, *section* = None)

Parse OpenSSL-style foo.0, foo.1, ... subscripted options.

Returns a list of values matching the specified option name.

Definition at line 32 of file config.py.

3.38.3 Member Data Documentation

3.38.3.1 rpkiconfig.parser.default_section

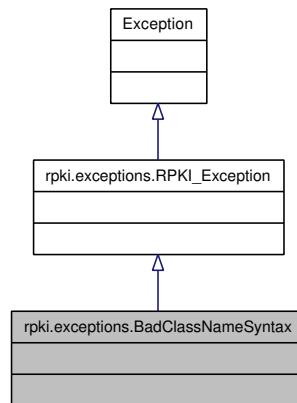
Definition at line 30 of file config.py.

The documentation for this class was generated from the following file:

- [config.py \(1873\)](#)

3.39 rpkி.exceptions.BadClassNameSyntax Class Reference

Inheritance diagram for rpkி.exceptions.BadClassNameSyntax:



3.39.1 Detailed Description

Illegal syntax for a class_name.

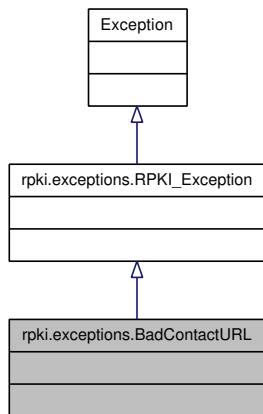
Definition at line 53 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.40 rpkி.exceptions.BadContactURL Class Reference

Inheritance diagram for rpkி.exceptions.BadContactURL:



3.40.1 Detailed Description

Error trying to parse up-down protocol contact URL.

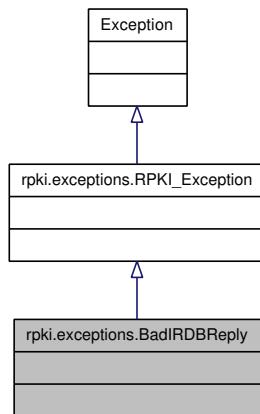
Definition at line 50 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.41 rpkி.exceptions.BadIRDBReply Class Reference

Inheritance diagram for rpkி.exceptions.BadIRDBReply:



3.41.1 Detailed Description

Unexpected reply to IRDB query.

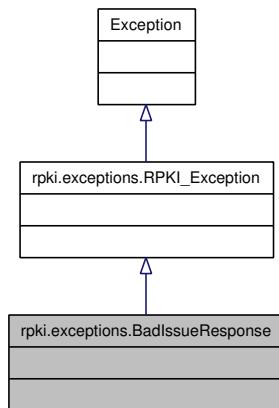
Definition at line 86 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.42 rpki.exceptions.BadIssueResponse Class Reference

Inheritance diagram for rpki.exceptions.BadIssueResponse:



3.42.1 Detailed Description

issue_response PDU with wrong number of classes or certificates.

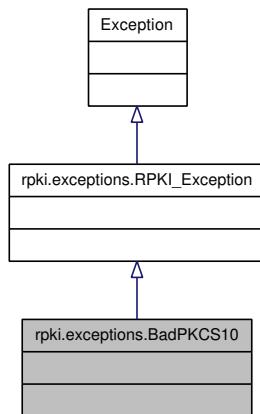
Definition at line 56 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.43 rpkி.exceptions.BadPKCS10 Class Reference

Inheritance diagram for rpkி.exceptions.BadPKCS10:



3.43.1 Detailed Description

Bad PKCS #10 object.

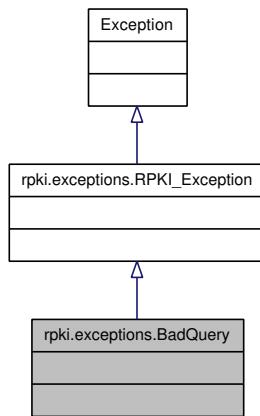
Definition at line 62 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.44 rpkி.exceptions.BadQuery Class Reference

Inheritance diagram for rpkி.exceptions.BadQuery:



3.44.1 Detailed Description

Unexpected protocol query.

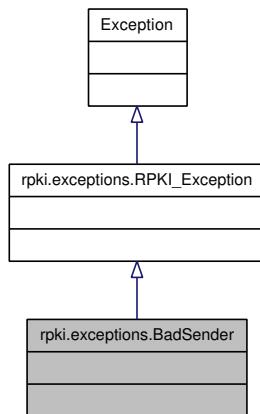
Definition at line 32 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.45 rpkி.exceptions.BadSender Class Reference

Inheritance diagram for rpkி.exceptions.BadSender:



3.45.1 Detailed Description

Unexpected XML sender value.

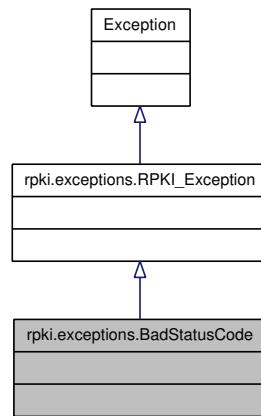
Definition at line 74 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.46 rpkி.exceptions.BadStatusCode Class Reference

Inheritance diagram for rpkி.exceptions.BadStatusCode:



3.46.1 Detailed Description

Unrecognized protocol status code.

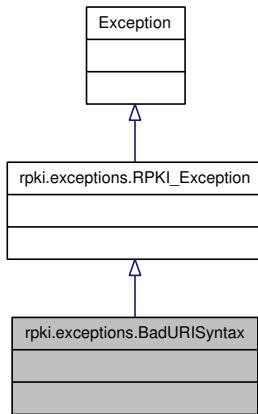
Definition at line 29 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.47 rpkி.exceptions.BadURISyntax Class Reference

Inheritance diagram for rpkி.exceptions.BadURISyntax:



3.47.1 Detailed Description

Illegal syntax for a URI.

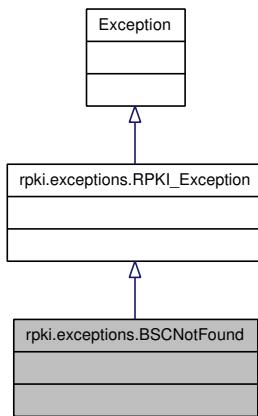
Definition at line 26 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.48 rpkி.exceptions.BSCNotFound Class Reference

Inheritance diagram for rpkி.exceptions.BSCNotFound:



3.48.1 Detailed Description

Could not find specified BSC in database.

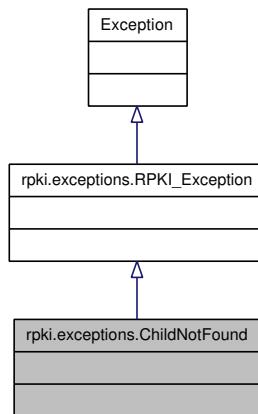
Definition at line 71 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.49 rpkி.exceptions.ChildNotFound Class Reference

Inheritance diagram for rpkி.exceptions.ChildNotFound:



3.49.1 Detailed Description

Could not find specified child in database.

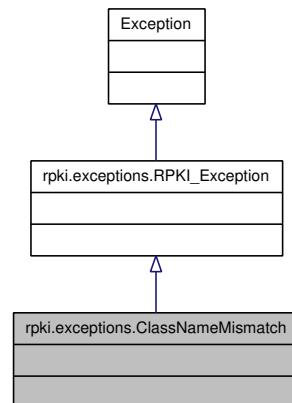
Definition at line 68 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.50 rpki.exceptions.ClassNameMismatch Class Reference

Inheritance diagram for rpki.exceptions.ClassNameMismatch:



3.50.1 Detailed Description

class_name does not match child context.

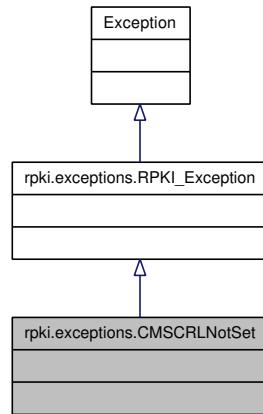
Definition at line 77 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.51 rpkி.exceptions.CMSCRLNotSet Class Reference

Inheritance diagram for rpkி.exceptions.CMSCRLNotSet:



3.51.1 Detailed Description

CMS CRL has not been configured.

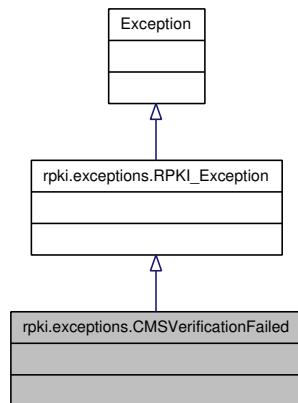
Definition at line 125 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.52 rpki.exceptions.CMSVerificationFailed Class Reference

Inheritance diagram for rpki.exceptions.CMSVerificationFailed:



3.52.1 Detailed Description

Verification of a CMS message failed.

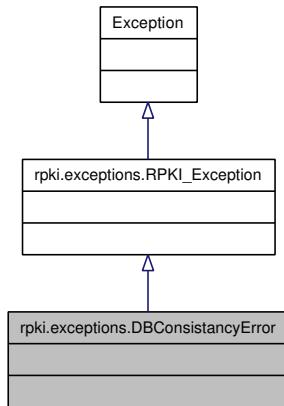
Definition at line 38 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.53 rpkி.exceptions.DBConsistencyError Class Reference

Inheritance diagram for rpkி.exceptions.DBConsistencyError:



3.53.1 Detailed Description

Found multiple matches for a database query that shouldn't ever return that.

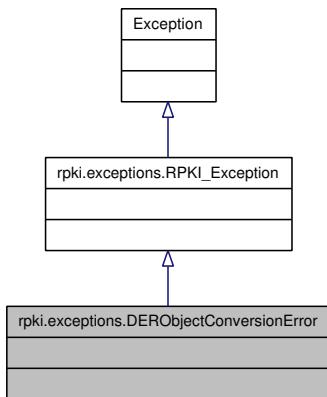
Definition at line 35 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.54 rpki.exceptions.DERObjectConversionError Class Reference

Inheritance diagram for rpki.exceptions.DERObjectConversionError:



3.54.1 Detailed Description

Error trying to convert a DER-based object from one representation to another.

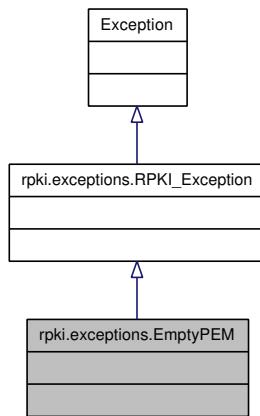
Definition at line 44 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.55 rpkி.exceptions.EmptyPEM Class Reference

Inheritance diagram for rpkி.exceptions.EmptyPEM:



3.55.1 Detailed Description

Couldn't find PEM block to convert.

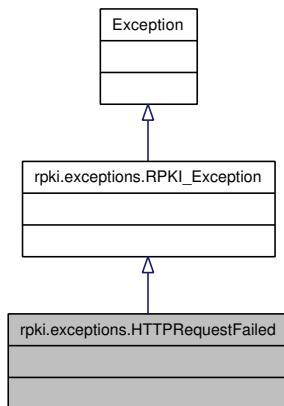
Definition at line 107 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.56 rpki.exceptions.HTTPRequestFailed Class Reference

Inheritance diagram for rpki.exceptions.HTTPRequestFailed:



3.56.1 Detailed Description

HTTP request failed.

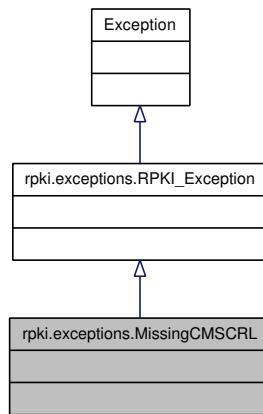
Definition at line 41 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.57 rpkி.exceptions.MissingCMSCRL Class Reference

Inheritance diagram for rpkி.exceptions.MissingCMSCRL:



3.57.1 Detailed Description

Didn't receive CMS CRL when expecting one.

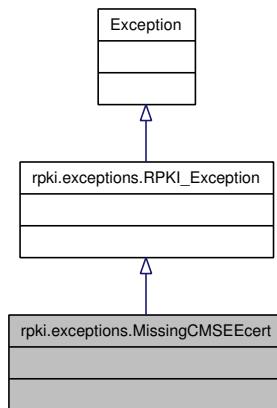
Definition at line 119 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.58 rpki.exceptions.MissingCMSEEcrt Class Reference

Inheritance diagram for rpki.exceptions.MissingCMSEEcrt:



3.58.1 Detailed Description

Didn't receive CMS EE cert when expecting one.

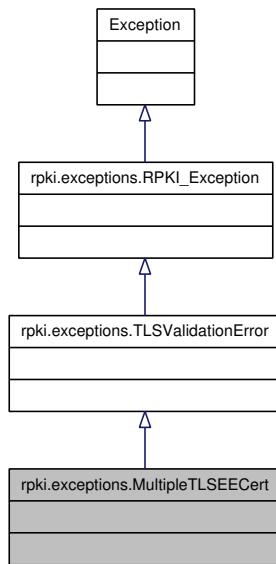
Definition at line 116 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.59 rpki.exceptions.MultipleTLSEECert Class Reference

Inheritance diagram for rpki.exceptions.MultipleTLSEECert:



3.59.1 Detailed Description

Received more than one TLS EE certificate.

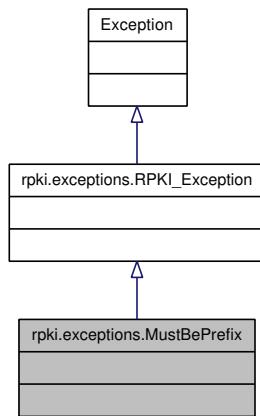
Definition at line 98 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.60 rpkி.exceptions.MustBePrefix Class Reference

Inheritance diagram for rpkி.exceptions.MustBePrefix:



3.60.1 Detailed Description

Resource range cannot be expressed as a prefix.

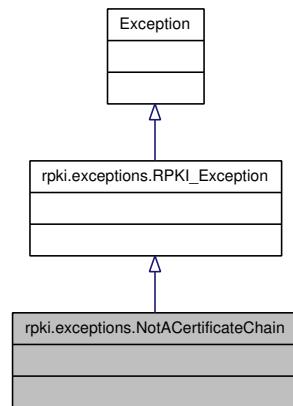
Definition at line 92 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.61 rpki.exceptions.NotACertificateChain Class Reference

Inheritance diagram for rpki.exceptions.NotACertificateChain:



3.61.1 Detailed Description

Certificates don't form a proper chain.

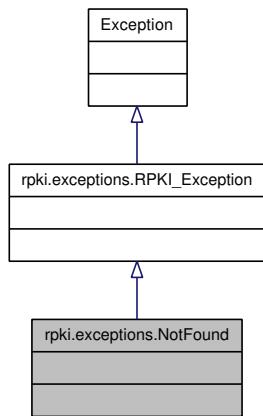
Definition at line 47 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.62 rpkி.exceptions.NotFound Class Reference

Inheritance diagram for rpkி.exceptions.NotFound:



3.62.1 Detailed Description

Object not found in database.

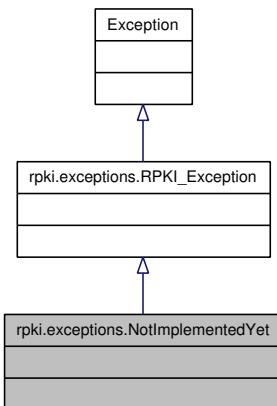
Definition at line 89 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.63 rpki.exceptions.NotImplementedYet Class Reference

Inheritance diagram for rpki.exceptions.NotImplementedYet:



3.63.1 Detailed Description

Internal error -- not implemented yet.

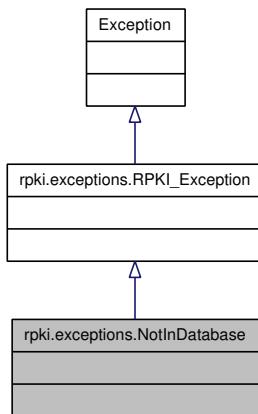
Definition at line 59 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.64 rpkி.exceptions.NotInDatabase Class Reference

Inheritance diagram for rpkி.exceptions.NotInDatabase:



3.64.1 Detailed Description

Lookup failed for an object expected to be in the database.

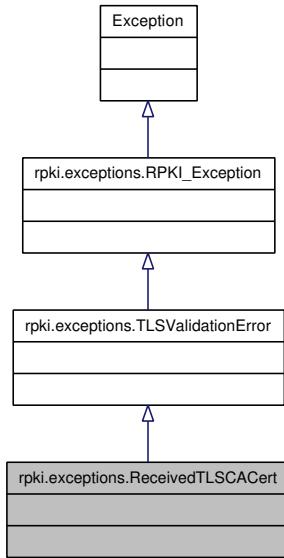
Definition at line 23 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.65 rpkி.exceptions.ReceivedTLSCACert Class Reference

Inheritance diagram for rpkி.exceptions.ReceivedTLSCACert:



3.65.1 Detailed Description

Received CA certificate via TLS.

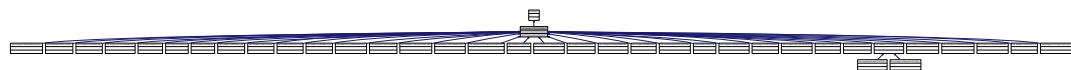
Definition at line 101 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.66 rpkி.exceptions.RPKI_Exception Class Reference

Inheritance diagram for rpkி.exceptions.RPKI_Exception:



3.66.1 Detailed Description

Base class for RPKI exceptions.

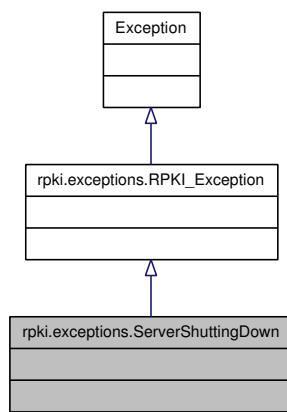
Definition at line 20 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.67 rpkி.exceptions.ServerShuttingDown Class Reference

Inheritance diagram for rpkி.exceptions.ServerShuttingDown:



3.67.1 Detailed Description

Server is shutting down.

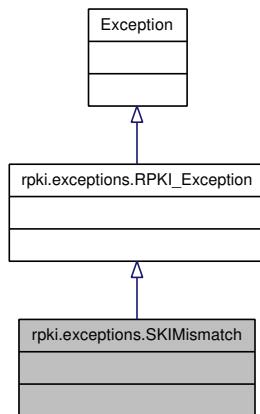
Definition at line 128 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.68 rpkி.exceptions.SKIMismatch Class Reference

Inheritance diagram for rpkி.exceptions.SKIMismatch:



3.68.1 Detailed Description

SKI value in response does not match request.

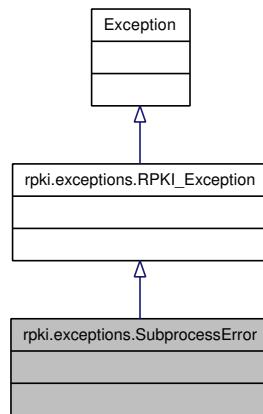
Definition at line 80 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.69 rpkி.exceptions.SubprocessError Class Reference

Inheritance diagram for rpkி.exceptions.SubprocessError:



3.69.1 Detailed Description

Subprocess returned unexpected error.

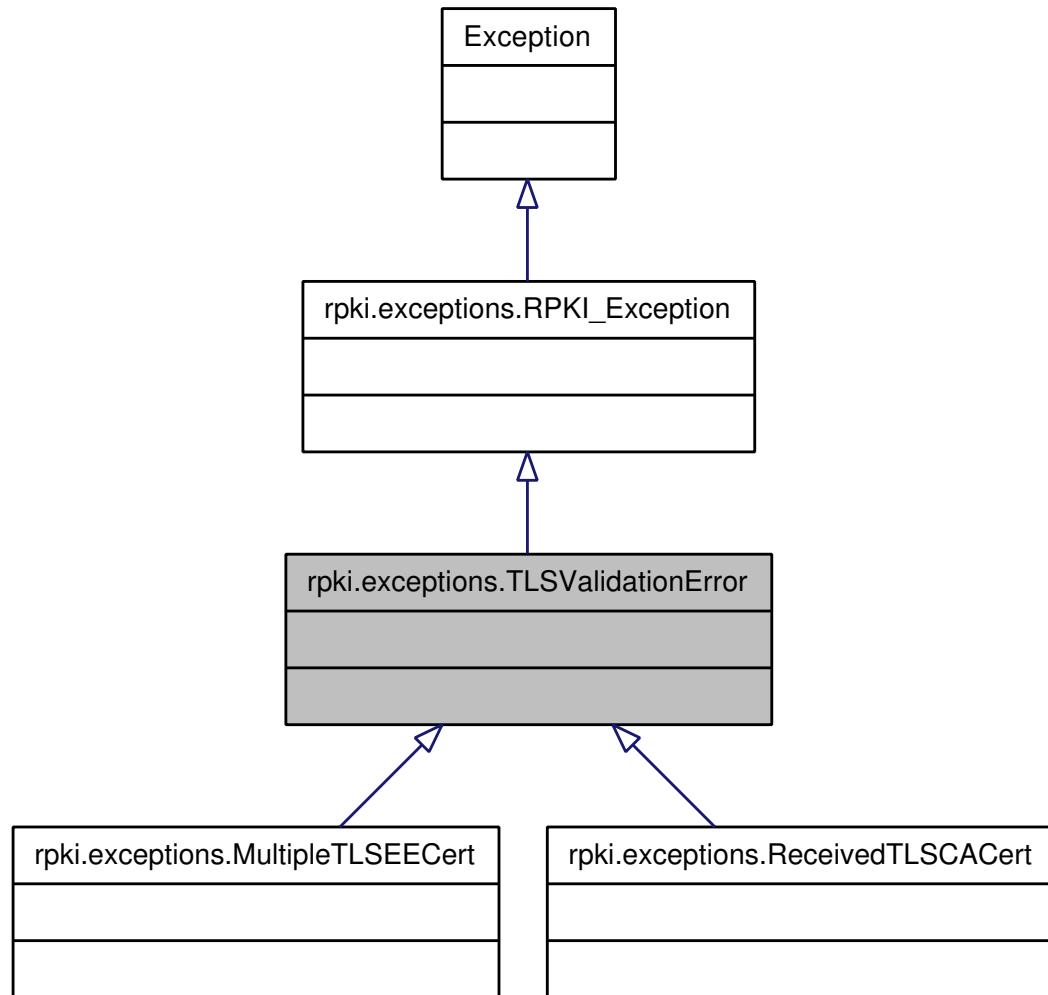
Definition at line 83 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.70 rpki.exceptions.TLSValidationException Class Reference

Inheritance diagram for rpki.exceptions.TLSValidationException:



3.70.1 Detailed Description

TLS certificate validation error.

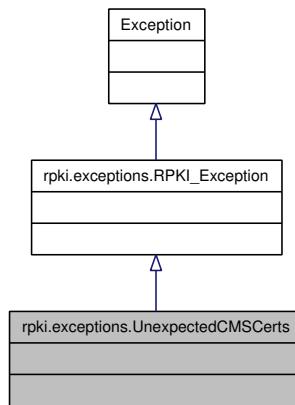
Definition at line 95 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.71 rpki.exceptions.UnexpectedCMSCerts Class Reference

Inheritance diagram for rpki.exceptions.UnexpectedCMSCerts:



3.71.1 Detailed Description

Received CMS certs when not expecting any.

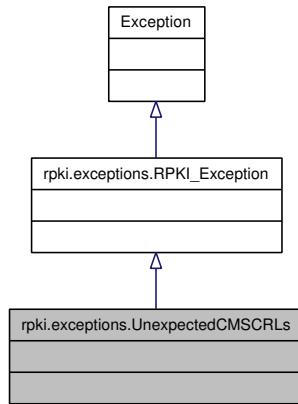
Definition at line 110 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.72 rpki.exceptions.UnexpectedCMSCRLs Class Reference

Inheritance diagram for rpki.exceptions.UnexpectedCMSCRLs:



3.72.1 Detailed Description

Received CMS CRLs when not expecting any.

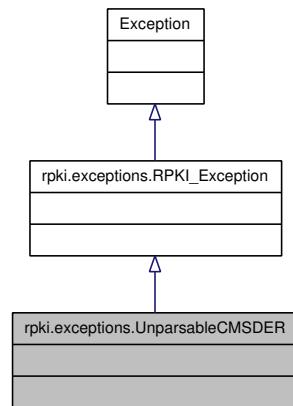
Definition at line 113 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.73 rpki.exceptions.UnparsableCMSSDER Class Reference

Inheritance diagram for rpki.exceptions.UnparsableCMSSDER:



3.73.1 Detailed Description

Alleged CMS DER wasn't parsable.

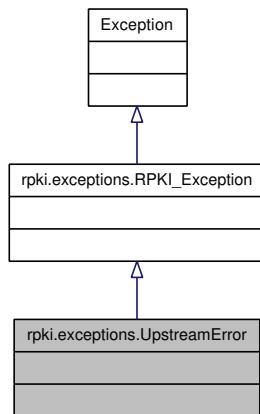
Definition at line 122 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.74 rpkி.exceptions.UpstreamError Class Reference

Inheritance diagram for rpkி.exceptions.UpstreamError:



3.74.1 Detailed Description

Received an error from upstream.

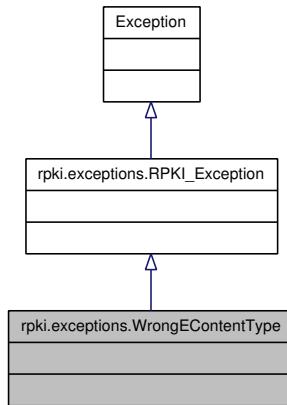
Definition at line 65 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.75 rpkி.exceptions.WrongEContentType Class Reference

Inheritance diagram for rpkி.exceptions.WrongEContentType:



3.75.1 Detailed Description

Received wrong CMS eContentType.

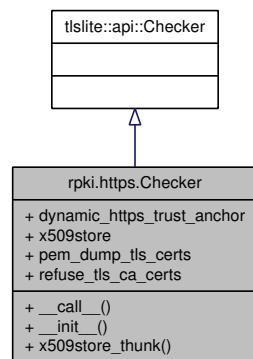
Definition at line 104 of file exceptions.py.

The documentation for this class was generated from the following file:

- [exceptions.py \(1873\)](#)

3.76 rpkி.https.Checker Class Reference

Inheritance diagram for rpkி.https.Checker:



Public Member Functions

- def [__call__](#)
- def [__init__](#)
- def [x509store_thunk](#)

Public Attributes

- [dynamic_https_trust_anchor](#)
- [x509store](#)

Static Public Attributes

- [pem_dump_tls_certs](#) = False
Vile debugging hack.
- [refuse_tls_ca_certs](#) = False
Raise an exception upon receiving CA certificates via TLS rather than just quietly ignoring them.

3.76.1 Detailed Description

Derived class to handle X.509 client certificate checking.

Definition at line 55 of file https.py.

3.76.2 Member Function Documentation

3.76.2.1 def rpkি.https.Checker.__call__ (self, tlsConnection)

POW/OpenSSL-based certificate checker.

Given our BPKI model, we're only interested in the TLS EE certificates.

Definition at line 95 of file https.py.

3.76.2.2 def rpkি.https.Checker.__init__ (self, trust_anchor = None, dynamic_https_trust_anchor = None)

Initialize our modified certificate checker.

Definition at line 69 of file https.py.

3.76.2.3 def rpki.https.Checker.x509store_thunk (*self*)

Definition at line 89 of file https.py.

3.76.3 Member Data Documentation**3.76.3.1 rpki.https.Checker.dynamic_https_trust_anchor**

Definition at line 72 of file https.py.

3.76.3.2 rpki::https.Checker::pem_dump_tls_certs = False [static]

Vile debugging hack.

Definition at line 67 of file https.py.

3.76.3.3 rpki::https.Checker::refuse_tls_ca_certs = False [static]

Raise an exception upon receiving CA certificates via TLS rather than just quietly ignoring them.

Definition at line 62 of file https.py.

3.76.3.4 rpki.https.Checker.x509store

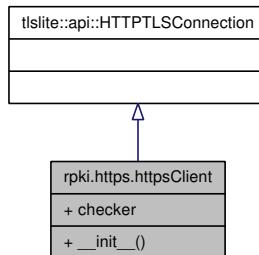
Definition at line 77 of file https.py.

The documentation for this class was generated from the following file:

- [https.py \(1873\)](#)

3.77 rpki.https.httpsClient Class Reference

Inheritance diagram for rpki.https.httpsClient:



Public Member Functions

- def [__init__](#)

Public Attributes

- [checker](#)

3.77.1 Detailed Description

Derived class to let us replace the default Checker.

Definition at line 138 of file https.py.

3.77.2 Member Function Documentation

3.77.2.1 def rpkি.https.httpsClient.__init__ (*self*, *host*, *port* = None, *client_cert* = None, *client_key* = None, *server_ta* = None, *settings* = None)

Create a new httpsClient.

Definition at line 141 of file https.py.

3.77.3 Member Data Documentation

3.77.3.1 rpkি.https.httpsClient.checker

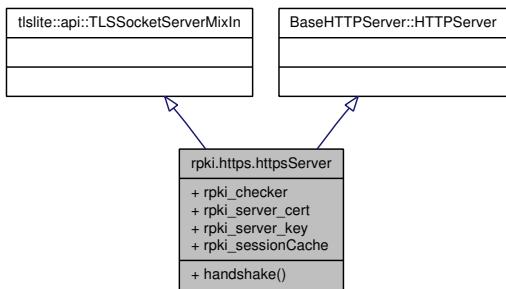
Definition at line 148 of file https.py.

The documentation for this class was generated from the following file:

- [https.py \(1873\)](#)

3.78 rpkি.https.httpsServer Class Reference

Inheritance diagram for rpkি.https.httpsServer:



Public Member Functions

- def `handshake`

Static Public Attributes

- `rpki_checker = None`
- `rpki_server_cert = None`
- `rpki_server_key = None`
- `rpki_sessionCache = None`

3.78.1 Detailed Description

Derived type to handle TLS aspects of HTTPS.

Definition at line 235 of file `https.py`.

3.78.2 Member Function Documentation

3.78.2.1 def rpkি.https.httpsServer.handshake (*self*, *tlsConnection*)

TLS handshake handler.

Definition at line 243 of file `https.py`.

3.78.3 Member Data Documentation

3.78.3.1 rpki.https.httpsServer.rpki_checker = None [static]

Definition at line 241 of file https.py.

3.78.3.2 rpki.https.httpsServer.rpki_server_cert = None [static]

Definition at line 240 of file https.py.

3.78.3.3 rpki.https.httpsServer.rpki_server_key = None [static]

Definition at line 239 of file https.py.

3.78.3.4 rpki.https.httpsServer.rpki_sessionCache = None [static]

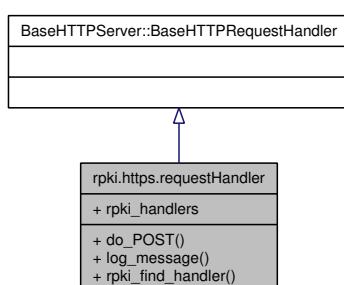
Definition at line 238 of file https.py.

The documentation for this class was generated from the following file:

- [https.py \(1873\)](#)

3.79 rpki.https.requestHandler Class Reference

Inheritance diagram for rpki.https.requestHandler:



Public Member Functions

- def [do_POST](#)
- def [log_message](#)
- def [rpki_find_handler](#)

Static Public Attributes

- `rpkি_handlers` = None

3.79.1 Detailed Description

Derived type to supply POST handler and override logging.

Definition at line 196 of file https.py.

3.79.2 Member Function Documentation

3.79.2.1 def rpkি.https.requestHandler.do_POST (*self*)

POST handler.

Definition at line 208 of file https.py.

3.79.2.2 def rpkি.https.requestHandler.log_message (*self, format, args*)

Redirect HTTP server logging into our own logging system.

Definition at line 228 of file https.py.

3.79.2.3 def rpkি.https.requestHandler.rpkি_find_handler (*self*)

Helper method to search `self.rpkি_handlers`.

Definition at line 201 of file https.py.

3.79.3 Member Data Documentation

3.79.3.1 rpkি.https.requestHandler.rpkি_handlers = None [static]

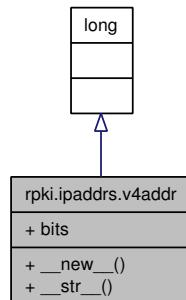
Definition at line 199 of file https.py.

The documentation for this class was generated from the following file:

- [https.py \(1873\)](#)

3.80 rpki.ipaddrs.v4addr Class Reference

Inheritance diagram for rpki.ipaddrs.v4addr:



Public Member Functions

- def `__new__`
- def `__str__`

Static Public Attributes

- int `bits` = 32

3.80.1 Detailed Description

IPv4 address.

Derived from `long`, but supports IPv4 print syntax.

Definition at line 32 of file `ipaddrs.py`.

3.80.2 Member Function Documentation

3.80.2.1 def rpki.ipaddrs.v4addr.__new__ (*cls*, *x*)

Construct a `v4addr` object.

Definition at line 40 of file `ipaddrs.py`.

3.80.2.2 def rpki.ipaddrs.v4addr.__str__ (*self*)

Convert a v4addr object to string format.

Definition at line 48 of file ipaddrs.py.

3.80.3 Member Data Documentation

3.80.3.1 int rpki.ipaddrs.v4addr.bits = 32 [static]

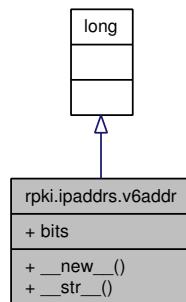
Definition at line 38 of file ipaddrs.py.

The documentation for this class was generated from the following file:

- [ipaddrs.py \(1873\)](#)

3.81 rpki.ipaddrs.v6addr Class Reference

Inheritance diagram for rpki.ipaddrs.v6addr:



Public Member Functions

- def [__new__](#)
- def [__str__](#)

Static Public Attributes

- int [bits](#) = 128

3.81.1 Detailed Description

IPv6 address.

Derived from long, but supports IPv6 print syntax.

Definition at line 52 of file ipaddrs.py.

3.81.2 Member Function Documentation

3.81.2.1 def rpki.ipaddrs.v6addr.__new__ (cls, x)

Construct a v6addr object.

Definition at line 60 of file ipaddrs.py.

3.81.2.2 def rpki.ipaddrs.v6addr.__str__ (self)

Convert a v6addr object to string format.

Definition at line 67 of file ipaddrs.py.

3.81.3 Member Data Documentation

3.81.3.1 int rpki.ipaddrs.v6addr.bits = 128 [static]

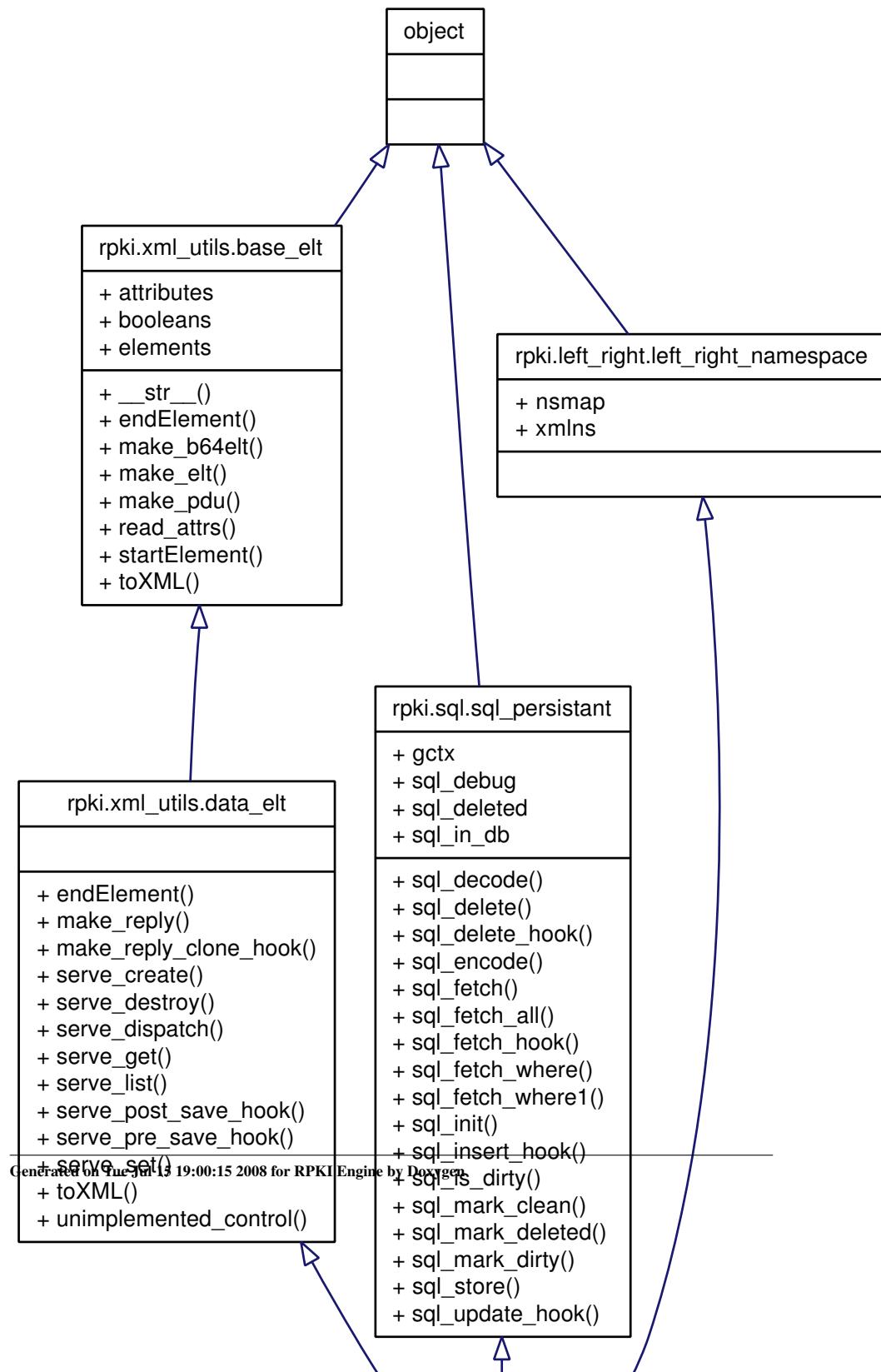
Definition at line 58 of file ipaddrs.py.

The documentation for this class was generated from the following file:

- [ipaddrs.py \(1873\)](#)

3.82 rpk.left_right.bsc_elt Class Reference

Inheritance diagram for rpk.left_right.bsc_elt:



Public Member Functions

- def [children](#)
- def [parents](#)
- def [repositories](#)
- def [serve_pre_save_hook](#)

Static Public Attributes

- tuple [attributes](#) = ("action", "tag", "self_id", "bsc_id", "key_type", "hash_alg", "key_length")
XML attributes for this element.
- tuple [booleans](#) = ("generate_keypair",)
Boolean attributes (value "yes" or "no") for this element.
- string [element_name](#) = "bsc"
- tuple [elements](#) = ("signing_cert", "signing_cert_crl", "pkcs10_request")
XML elements contained by this element.
- [pkcs10_request](#) = None
- [private_key_id](#) = None
- [signing_cert](#) = None
- [signing_cert_crl](#) = None
- tuple [sql_template](#)

3.82.1 Detailed Description

<bsc/> (Business Signing Context) element.

Definition at line 235 of file left_right.py.

3.82.2 Member Function Documentation

3.82.2.1 def rpk.left_right.bsc_elt.children (*self*)

Fetch all child objects that link to this BSC object.

Definition at line 262 of file left_right.py.

3.82.2.2 def rpki.left_right.bsc_elt.parents (*self*)

Fetch all parent objects that link to this BSC object.

Definition at line 258 of file left_right.py.

3.82.2.3 def rpki.left_right.bsc_elt.repositories (*self*)

Fetch all repository objects that link to this BSC object.

Definition at line 254 of file left_right.py.

3.82.2.4 def rpki.left_right.bsc_elt.serve_pre_save_hook (*self, q_pdu, r_pdu*)

Extra server actions for bsc_elt -- handle key generation.
For now this only allows RSA with SHA-256.

Reimplemented from [rpki.xml_utils.data_elt](#).

Definition at line 266 of file left_right.py.

3.82.3 Member Data Documentation**3.82.3.1 tuple rpki.left_right.bsc_elt.attributes = ("action", "tag", "self_id", "bsc_id", "key_type", "hash_alg", "key_length") [static]**

XML attributes for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 239 of file left_right.py.

3.82.3.2 tuple rpki.left_right.bsc_elt.booleans = ("generate_keypair",) [static]

Boolean attributes (value "yes" or "no") for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 241 of file left_right.py.

3.82.3.3 string rpki.left_right.bsc_elt.element_name = "bsc" [static]

Definition at line 238 of file left_right.py.

3.82.3.4 tuple rpki.left_right.bsc_elt.elements = ("signing_cert", "signing_cert_crl", "pkcs10_request") [static]

XML elements contained by this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 240 of file left_right.py.

3.82.3.5 rpki.left_right.bsc_elt.pkcs10_request = None [static]

Definition at line 250 of file left_right.py.

3.82.3.6 rpki.left_right.bsc_elt.private_key_id = None [static]

Definition at line 249 of file left_right.py.

3.82.3.7 rpki.left_right.bsc_elt.signing_cert = None [static]

Reimplemented in [irbe_cli.bsc_elt](#).

Definition at line 251 of file left_right.py.

3.82.3.8 rpki.left_right.bsc_elt.signing_cert_crl = None [static]

Reimplemented in [irbe_cli.bsc_elt](#).

Definition at line 252 of file left_right.py.

3.82.3.9 tuple rpki.left_right.bsc_elt.sql_template [static]

Initial value:

```
rpki.sql.template("bsc", "bsc_id", "self_id", "hash_alg",
                   ("private_key_id", rpki.x509.RSA),
                   ("pkcs10_request", rpki.x509.PKCS10),
                   ("signing_cert", rpki.x509.X509),
                   ("signing_cert_crl", rpki.x509.CRL))
```

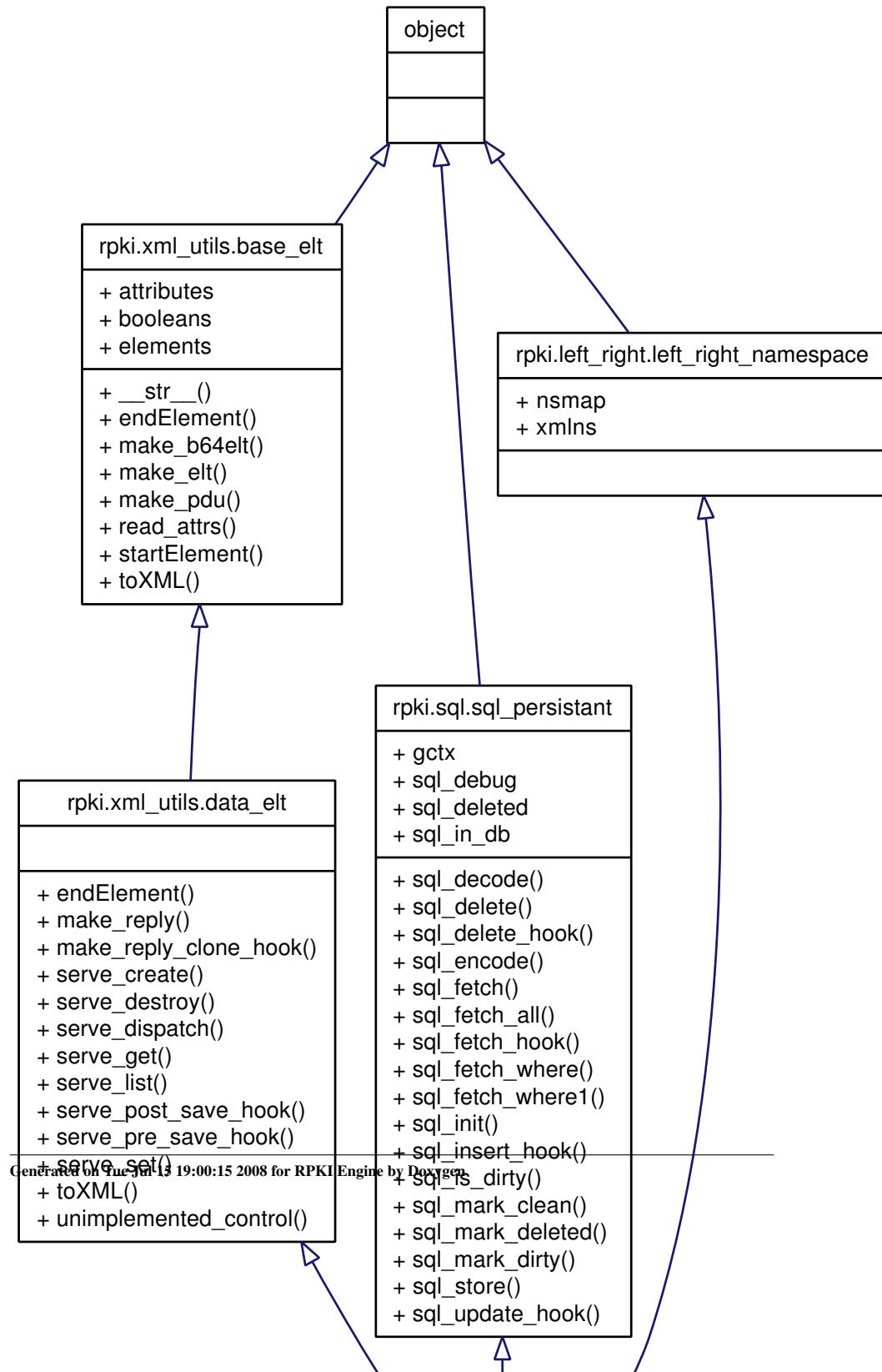
Definition at line 243 of file left_right.py.

The documentation for this class was generated from the following file:

- [left_right.py \(1987\)](#)

3.83 rpki.left_right.child_elt Class Reference

Inheritance diagram for rpki.left_right.child_elt:



Public Member Functions

- def `ca_from_class_name`
- def `child_certs`
- def `endElement`
- def `parents`
- def `serve_post_save_hook`
- def `serve_up_down`

Static Public Attributes

- tuple `attributes` = ("action", "tag", "self_id", "child_id", "bsc_id")
XML attributes for this element.
- tuple `booleans` = ("reissue",)
Boolean attributes (value "yes" or "no") for this element.
- `bpkı_cert` = None
- `bpkı_glue` = None
- `clear_https_ta_cache` = False
- string `element_name` = "child"
- tuple `elements` = ("bpki_cert", "bpki_glue")
XML elements contained by this element.
- tuple `sql_template`

3.83.1 Detailed Description

<child/> element.

Definition at line 366 of file left_right.py.

3.83.2 Member Function Documentation

3.83.2.1 def rpki.left_right.child_elt.ca_from_class_name (*self*, *class_name*)

Fetch the CA corresponding to an up-down class_name.

Definition at line 390 of file left_right.py.

3.83.2.2 def rpki.left_right.child_elt.child_certs (self, ca_detail = None, ski = None, unique = False)

Fetch all child_cert objects that link to this child object.

Definition at line 382 of file left_right.py.

3.83.2.3 def rpki.left_right.child_elt.endElement (self, stack, name, text)

Handle subelements of <child/> element. These require special handling because modifying them invalidates the HTTPS trust anchor cache.

Reimplemented from [rpki.xml_utils.data_elt](#).

Definition at line 407 of file left_right.py.

3.83.2.4 def rpki.left_right.child_elt.parents (self)

Fetch all parent objects that link to self object to which this child object links.

Definition at line 386 of file left_right.py.

3.83.2.5 def rpki.left_right.child_elt.serve_post_save_hook (self, q_pdu, r_pdu)

Extra server actions for child_elt.

Reimplemented from [rpki.xml_utils.data_elt](#).

Definition at line 400 of file left_right.py.

3.83.2.6 def rpki.left_right.child_elt.serve_up_down (self, query)

Outer layer of server handling for one up-down PDU from this child.

Definition at line 416 of file left_right.py.

3.83.3 Member Data Documentation**3.83.3.1 tuple rpki.left_right.child_elt.attributes = ('action', 'tag', 'self_id', 'child_id', 'bsc_id') [static]**

XML attributes for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 370 of file left_right.py.

3.83.3.2 tuple rpki.left_right.child_elt.booleans = ("reissue",) [static]

Boolean attributes (value "yes" or "no") for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 372 of file left_right.py.

3.83.3.3 rpki.left_right.child_elt.bpk_i_cert = None [static]

Definition at line 378 of file left_right.py.

3.83.3.4 rpki.left_right.child_elt.bpk_i_glue = None [static]

Definition at line 379 of file left_right.py.

3.83.3.5 rpki.left_right.child_elt.clear_https_ta_cache = False [static]

Definition at line 380 of file left_right.py.

3.83.3.6 string rpki.left_right.child_elt.element_name = "child" [static]

Definition at line 369 of file left_right.py.

3.83.3.7 tuple rpki.left_right.child_elt.elements = ("bpki_cert", "bpki_glue") [static]

XML elements contained by this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 371 of file left_right.py.

3.83.3.8 tuple rpki.left_right.child_elt.sql_template [static]

Initial value:

```
rpki.sql.template("child", "child_id", "self_id", "bsc_id",
                  ("bpki_cert", rpki.x509.X509),
                  ("bpki_glue", rpki.x509.X509))
```

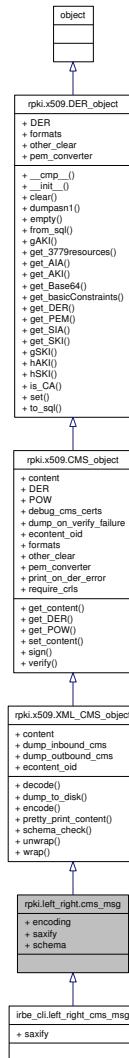
Definition at line 374 of file left_right.py.

The documentation for this class was generated from the following file:

- [left_right.py \(1987\)](#)

3.84 rpki.left_right.cms_msg Class Reference

Inheritance diagram for rpki.left_right.cms_msg:



Static Public Attributes

- string **encoding** = "us-ascii"
- **saxify** = sax_handler.saxify
- **schema** = [rpki.relaxng.left_right](#)

3.84.1 Detailed Description

Class to hold a CMS-signed left-right PDU.

Definition at line 820 of file left_right.py.

3.84.2 Member Data Documentation

3.84.2.1 string rpki.left_right.cms_msg.encoding = "us-ascii" [static]

Definition at line 823 of file left_right.py.

3.84.2.2 rpki.left_right.cms_msg.saxify = sax_handler.saxify [static]

Reimplemented in [irbe_cli.left_right_cms_msg](#).

Definition at line 825 of file left_right.py.

3.84.2.3 rpki.left_right.cms_msg.schema = rpki.relaxng.left_right [static]

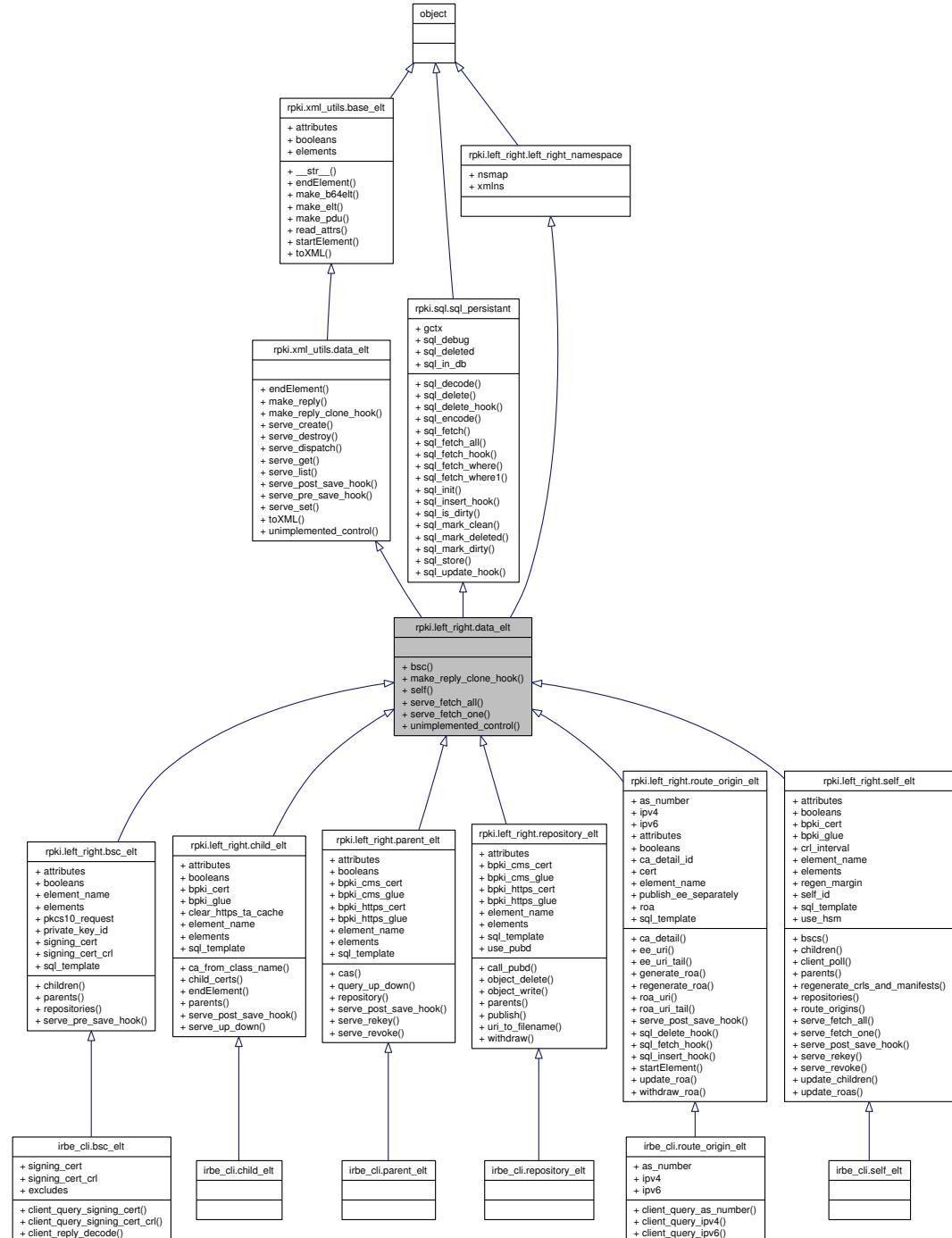
Definition at line 824 of file left_right.py.

The documentation for this class was generated from the following file:

- [left_right.py \(1987\)](#)

3.85 rpki.left_right.data_elt Class Reference

Inheritance diagram for rpki.left_right.data_elt:



Public Member Functions

- def `bsc`
- def `make_reply_clone_hook`
- def `self`
- def `serve_fetch_all`
- def `serve_fetch_one`
- def `unimplemented_control`

3.85.1 Detailed Description

Virtual class for top-level left-right protocol data elements.

Definition at line 34 of file `left_right.py`.

3.85.2 Member Function Documentation

3.85.2.1 def `rpk.left_right.data_elt.bsc (self)`

Return BSC object to which this object links.

Definition at line 41 of file `left_right.py`.

3.85.2.2 def `rpk.left_right.data_elt.make_reply_clone_hook (self, r_pdu)`

Set `self_id` when cloning.

Reimplemented from `rpk.xml_utils.data_elt`.

Definition at line 45 of file `left_right.py`.

3.85.2.3 def `rpk.left_right.data_elt.self (this)`

Fetch `self` object to which this object links.

Definition at line 37 of file `left_right.py`.

3.85.2.4 def `rpk.left_right.data_elt.serve_fetch_all (self)`

Find the objects on which a `list` method should operate.

Reimplemented in `rpk.left_right.self_elt`.

Definition at line 60 of file `left_right.py`.

3.85.2.5 def rpki.left_right.data_elt.serve_fetch_one (*self*)

Find the object on which a get, set, or destroy method should operate.

Reimplemented in [rpki.left_right.self_elt](#).

Definition at line 49 of file [left_right.py](#).

3.85.2.6 def rpki.left_right.data_elt.unimplemented_control (*self, controls*)

Uniform handling for unimplemented control operations.

Reimplemented from [rpki.xml_utils.data_elt](#).

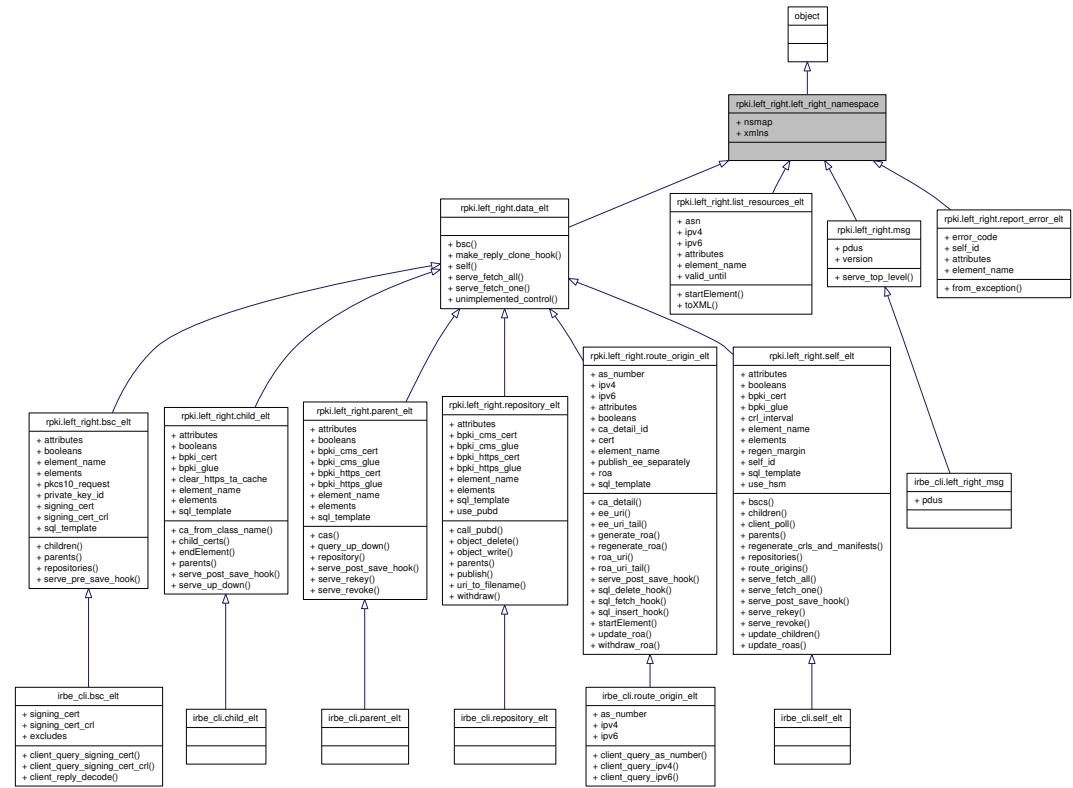
Definition at line 64 of file [left_right.py](#).

The documentation for this class was generated from the following file:

- [left_right.py \(1987\)](#)

3.86 rpki.left_right.left_right_namespace Class Reference

Inheritance diagram for rpki.left_right.left_right_namespace:



Static Public Attributes

- dictionary `nsmap` = { None : `xmlns` }
- string `xmlns` = "http://www.hactrn.net/uris/rpki/left-right-spec/"

3.86.1 Detailed Description

XML namespace parameters for left-right protocol.

Definition at line 28 of file `left_right.py`.

3.86.2 Member Data Documentation

3.86.2.1 dictionary rpkি.left_right.left_right_namespace.nsmap = { None : xmlns } [static]

Definition at line 32 of file left_right.py.

3.86.2.2 string rpkি.left_right.left_right_namespace.xmlns = "http://www.hactrn.net/uris/rpki/left-right-spec/" [static]

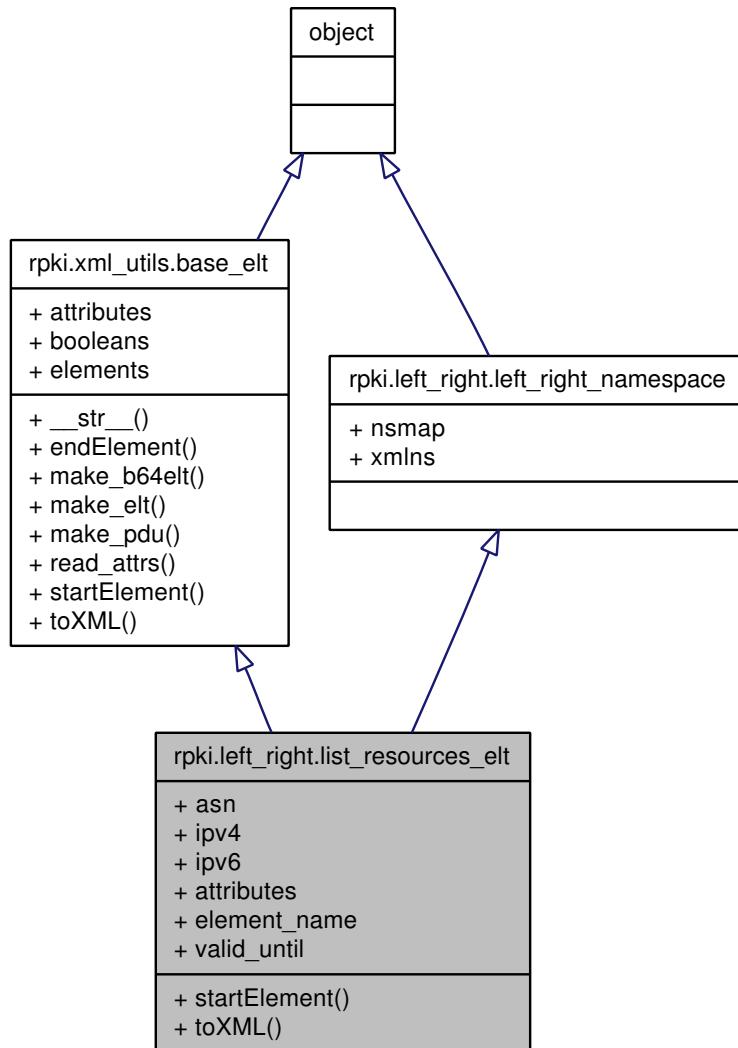
Definition at line 31 of file left_right.py.

The documentation for this class was generated from the following file:

- [left_right.py \(1987\)](#)

3.87 rpk.left_right.list_resources_elt Class Reference

Inheritance diagram for rpk.left_right.list_resources_elt:



Public Member Functions

- def `startElement`
- def `toXML`

Public Attributes

- `asn`
- `ipv4`
- `ipv6`

Static Public Attributes

- tuple `attributes` = ("self_id", "tag", "child_id", "valid_until", "asn", "ipv4", "ipv6", "subject_name")

XML attributes for this element.

- string `element_name` = "list_resources"
- `valid_until` = None

3.87.1 Detailed Description

`<list_resources/>` element.

Definition at line 746 of file left_right.py.

3.87.2 Member Function Documentation

3.87.2.1 def rpk.left_right.list_resources_elt.startElement (*self*, *stack*, *name*, *attrs*)

Handle `<list_resources/>` element. This requires special handling due to the data types of some of the attributes.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 753 of file left_right.py.

3.87.2.2 def rpk.left_right.list_resources_elt.toXML (*self*)

Generate `<list_resources/>` element. This requires special handling due to the data types of some of the attributes.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 768 of file left_right.py.

3.87.3 Member Data Documentation

3.87.3.1 rpki.left_right.list_resources_elt.asn

Definition at line 762 of file left_right.py.

3.87.3.2 tuple rpki.left_right.list_resources_elt.attributes = ("self_id", "tag", "child_id", "valid_until", "asn", "ipv4", "ipv6", "subject_name") [static]

XML attributes for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 750 of file left_right.py.

3.87.3.3 string rpki.left_right.list_resources_elt.element_name = "list_-resources" [static]

Definition at line 749 of file left_right.py.

3.87.3.4 rpki.left_right.list_resources_elt.ipv4

Definition at line 764 of file left_right.py.

3.87.3.5 rpki.left_right.list_resources_elt.ipv6

Definition at line 766 of file left_right.py.

3.87.3.6 rpki.left_right.list_resources_elt.valid_until = None [static]

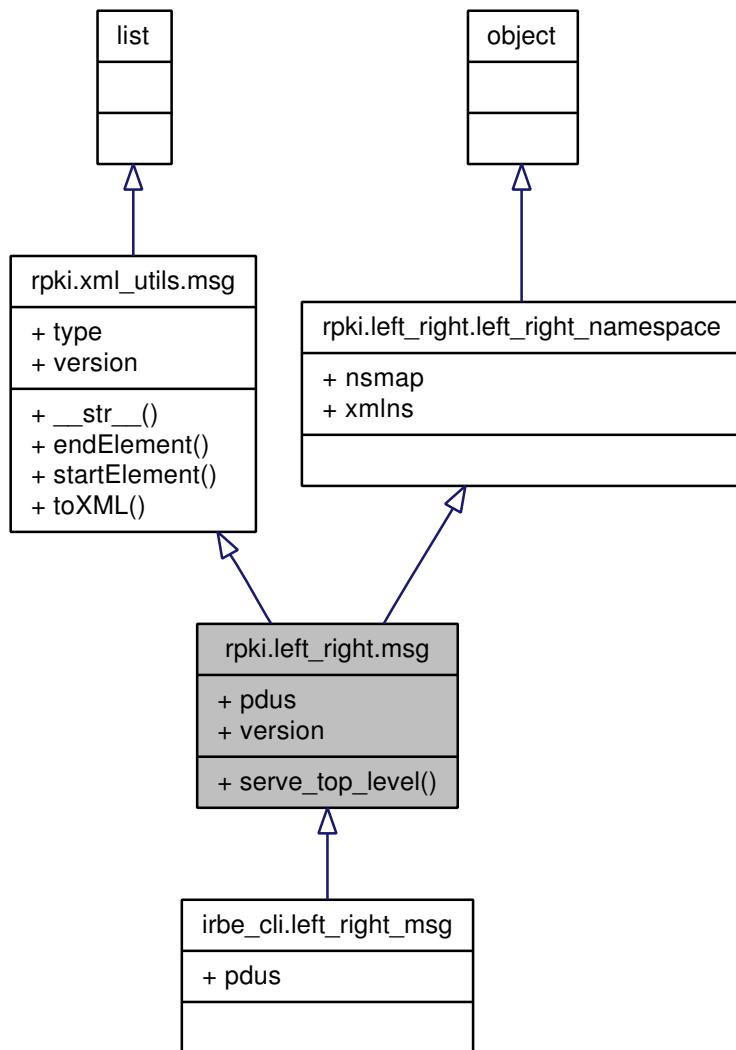
Definition at line 751 of file left_right.py.

The documentation for this class was generated from the following file:

- [left_right.py \(1987\)](#)

3.88 rpk.left_right.msg Class Reference

Inheritance diagram for rpk.left_right.msg:



Public Member Functions

- def `serve_top_level`

Static Public Attributes

- tuple **pdus**
Dispatch table of PDUs for this protocol.
- int **version** = 1
Protocol version.

3.88.1 Detailed Description

Left-right PDU.

Definition at line 791 of file left_right.py.

3.88.2 Member Function Documentation

3.88.2.1 def rpk.left_right.msg.serve_top_level (*self*, *gctx*)

Serve one msg PDU.

Definition at line 804 of file left_right.py.

3.88.3 Member Data Documentation

3.88.3.1 rpk::left_right.msg::pdus [static]

Initial value:

```
dict((x.element_name, x)
     for x in (self_elt, child_elt, parent_elt, bsc_elt, repository_elt,
               route_origin_elt, list_resources_elt, report_error_elt))
```

Dispatch table of PDUs for this protocol.

Reimplemented in [irbe_cli.left_right_msg](#).

Definition at line 800 of file left_right.py.

3.88.3.2 rpk::left_right.msg::version = 1 [static]

Protocol version.

Reimplemented from [rpk.xml_utils.msg](#).

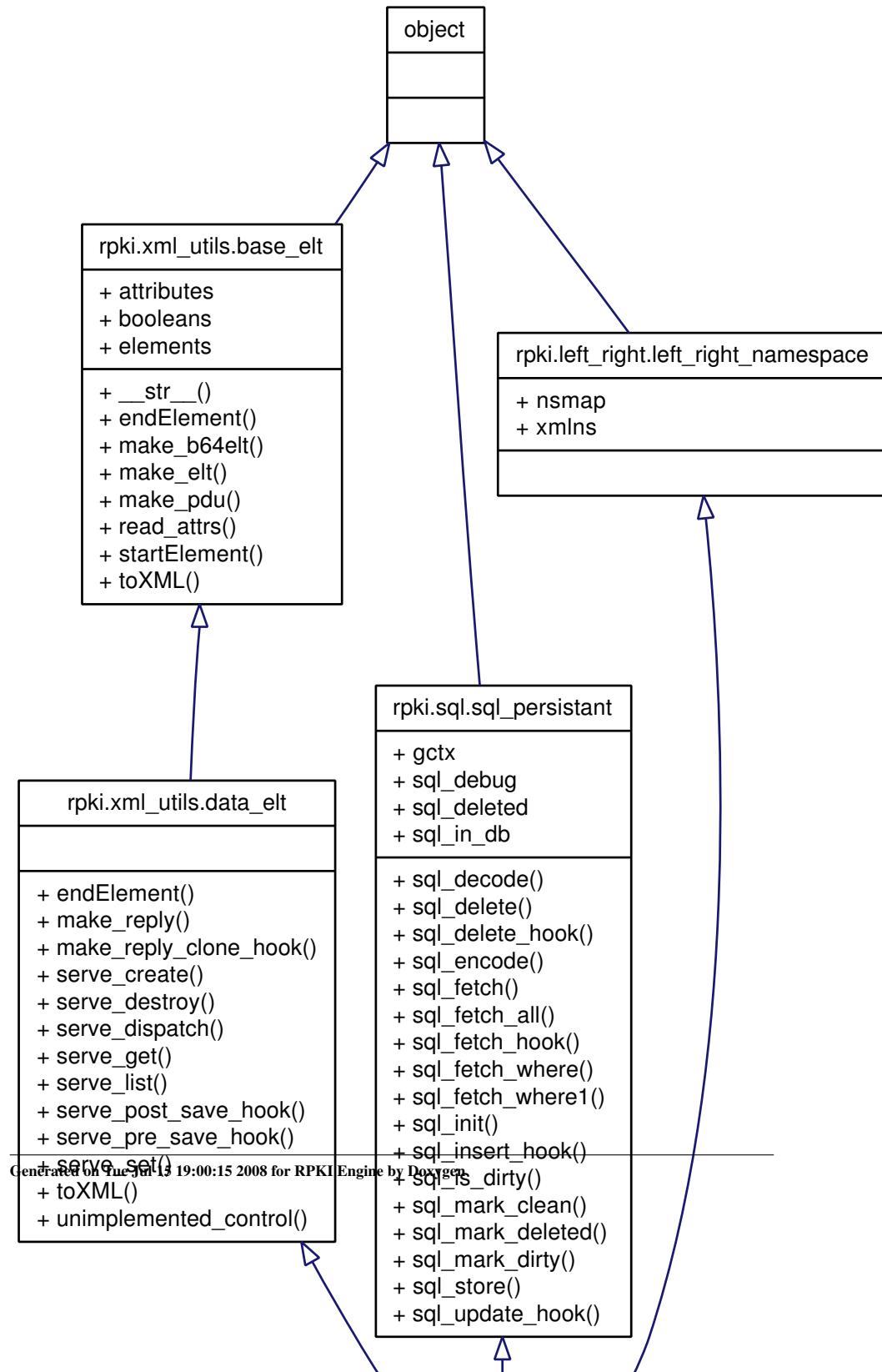
Definition at line 796 of file left_right.py.

The documentation for this class was generated from the following file:

- [left_right.py \(1987\)](#)

3.89 rpk.left_right.parent_elt Class Reference

Inheritance diagram for rpk.left_right.parent_elt:



Public Member Functions

- def `cas`
- def `query_up_down`
- def `repository`
- def `serve_post_save_hook`
- def `serve_rekey`
- def `serve_revoke`

Static Public Attributes

- tuple `attributes`
XML attributes for this element.
- tuple `booleans` = ("rekey", "reissue", "revoke")
Boolean attributes (value "yes" or "no") for this element.
- `bpkı_cms_cert` = None
- `bpkı_cms_glue` = None
- `bpkı_https_cert` = None
- `bpkı_https_glue` = None
- string `element_name` = "parent"
- tuple `elements` = ("bpki_cms_cert", "bpki_cms_glue", "bpki_https_cert", "bpki_https_glue")
XML elements contained by this element.
- tuple `sql_template`

3.89.1 Detailed Description

<parent/> element.

Definition at line 276 of file left_right.py.

3.89.2 Member Function Documentation

3.89.2.1 def rpki.left_right.parent_elt.cas (*self*)

Fetch all CA objects that link to this parent object.

Definition at line 299 of file left_right.py.

3.89.2.2 def rpki.left_right.parent_elt.query_up_down (self, q_pdu)

Client code for sending one up-down query PDU to this parent.

I haven't figured out yet whether this method should do something clever like dispatching via a method in the response PDU payload, or just hand back the whole response to the caller. In the long run this will have to become event driven with a context object that has methods of its own, but as this method is common code for several different queries and I don't yet know what the response processing looks like, it's too soon to tell what will make sense.

For now, keep this dead simple lock step, rewrite it later.

Definition at line 321 of file left_right.py.

3.89.2.3 def rpki.left_right.parent_elt.repository (self)

Fetch repository object to which this parent object links.

Definition at line 295 of file left_right.py.

3.89.2.4 def rpki.left_right.parent_elt.serve_post_save_hook (self, q_pdu, r_pdu)

Extra server actions for parent_elt.

Reimplemented from [rpki.xml_utils.data_elt](#).

Definition at line 303 of file left_right.py.

3.89.2.5 def rpki.left_right.parent_elt.serve_rekey (self)

Handle a left-right rekey action for this parent.

Definition at line 311 of file left_right.py.

3.89.2.6 def rpki.left_right.parent_elt.serve_revoke (self)

Handle a left-right revoke action for this parent.

Definition at line 316 of file left_right.py.

3.89.3 Member Data Documentation

3.89.3.1 tuple rpki.left_right.parent_elt.attributes [static]

Initial value:

```
("action", "tag", "self_id", "parent_id", "bsc_id", "repository_id",
    "peer_contact_uri", "sia_base", "sender_name", "recipient_name")
```

XML attributes for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 280 of file left_right.py.

3.89.3.2 tuple rpki.left_right.parent_elt.booleans = ("rekey", "reissue", "revoke") [static]

Boolean attributes (value "yes" or "no") for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 283 of file left_right.py.

3.89.3.3 rpki.left_right.parent_elt.bpkı_cms_cert = None [static]

Definition at line 290 of file left_right.py.

3.89.3.4 rpki.left_right.parent_elt.bpkı_cms_glue = None [static]

Definition at line 291 of file left_right.py.

3.89.3.5 rpki.left_right.parent_elt.bpkı_https_cert = None [static]

Definition at line 292 of file left_right.py.

3.89.3.6 rpki.left_right.parent_elt.bpkı_https_glue = None [static]

Definition at line 293 of file left_right.py.

3.89.3.7 string rpki.left_right.parent_elt.element_name = "parent" [static]

Definition at line 279 of file left_right.py.

3.89.3.8 tuple rpki.left_right.parent_elt.elements = ("bpki_cms_cert", "bpki_cms_glue", "bpki_https_cert", "bpki_https_glue") [static]

XML elements contained by this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 282 of file left_right.py.

3.89.3.9 tuple rpki.left_right.parent_elt.sql_template [static]

Initial value:

```
rpki.sql.template("parent", "parent_id", "self_id", "bsc_id", "repository_id",
                   ("bpki_cms_cert", rpki.x509.X509), ("bpki_cms_glue", rpki.x509.X509),
                   ("bpki_https_cert", rpki.x509.X509), ("bpki_https_glue", rpki.x509.X509),
                   "peer_contact_uri", "sia_base", "sender_name", "recipient_name")
```

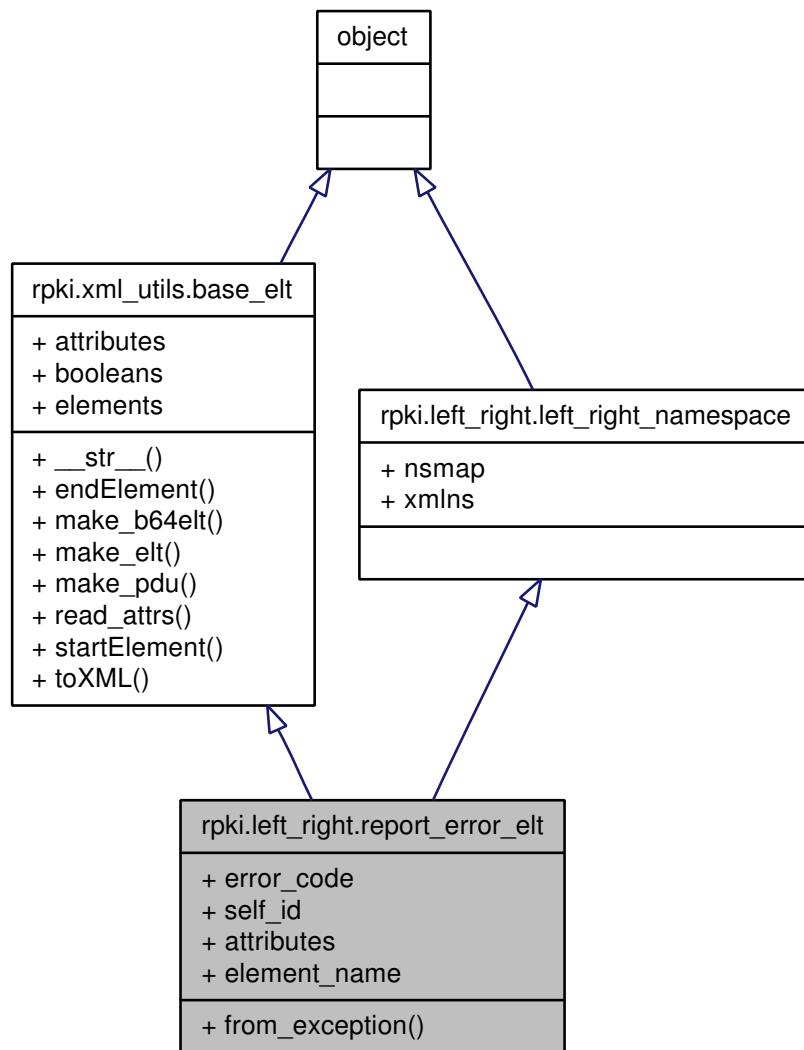
Definition at line 285 of file left_right.py.

The documentation for this class was generated from the following file:

- [left_right.py \(1987\)](#)

3.90 rpki.left_right.report_error_elt Class Reference

Inheritance diagram for rpki.left_right.report_error_elt:



Public Member Functions

- def [from_exception](#)

Public Attributes

- `error_code`
- `self_id`

Static Public Attributes

- tuple `attributes` = ("tag", "self_id", "error_code")
XML attributes for this element.
- string `element_name` = "report_error"

3.90.1 Detailed Description

`<report_error/>` element.

Definition at line 777 of file left_right.py.

3.90.2 Member Function Documentation

3.90.2.1 def rpkileft_right.report_error_elt.from_exception (*cls*, *exc*, *self_id* = None)

Generate a `<report_error/>` element from an exception.

Definition at line 784 of file left_right.py.

3.90.3 Member Data Documentation

3.90.3.1 tuple rpkileft_right.report_error_elt.attributes = ("tag", "self_id", "error_code") [static]

XML attributes for this element.

Reimplemented from `rpkixml_utils.base_elt`.

Definition at line 781 of file left_right.py.

3.90.3.2 string rpkileft_right.report_error_elt.element_name = "report_error" [static]

Definition at line 780 of file left_right.py.

3.90.3.3 rpki.left_right.report_error_elt.error_code

Definition at line 788 of file left_right.py.

3.90.3.4 rpki.left_right.report_error_elt.self_id

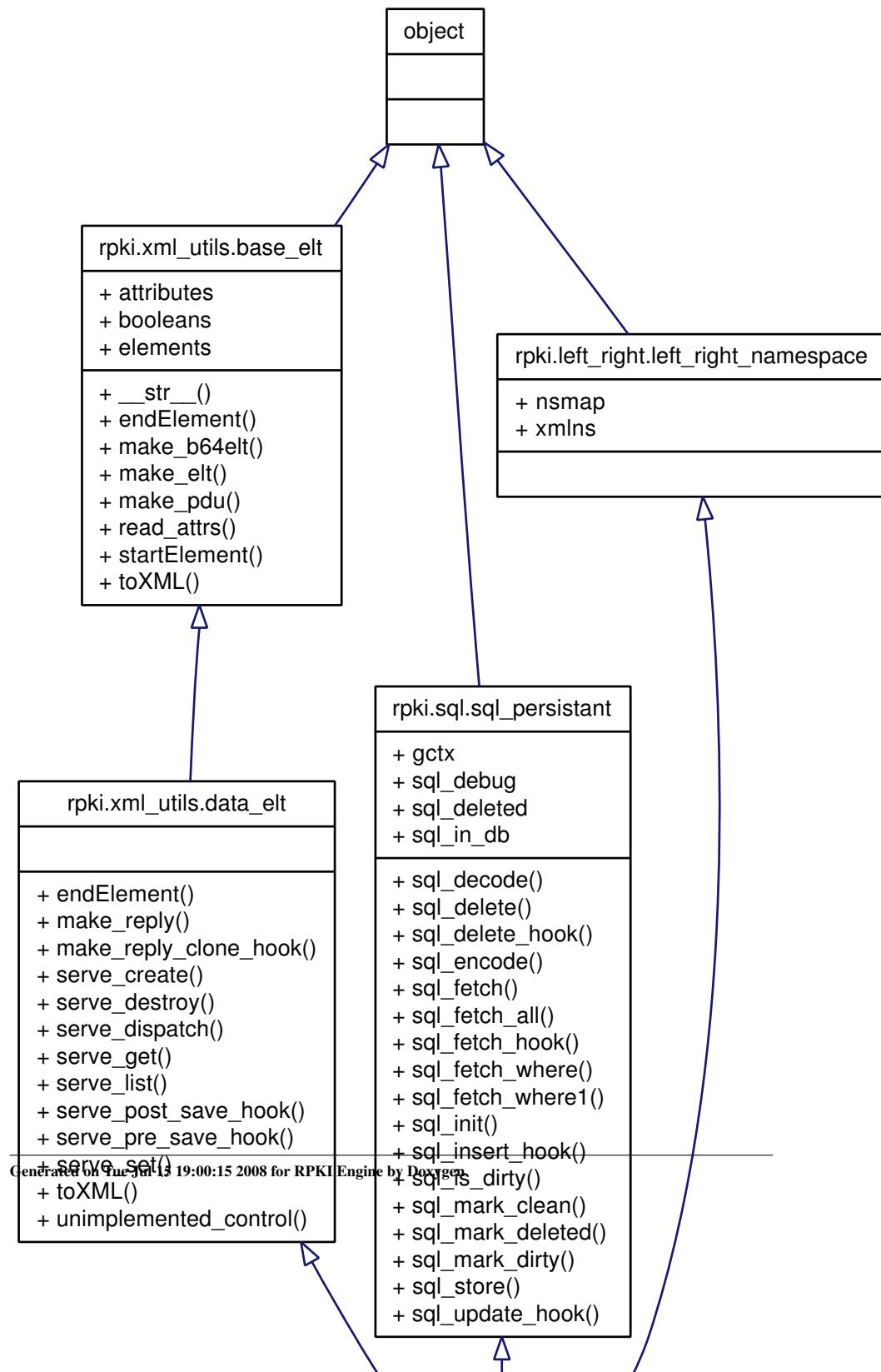
Definition at line 787 of file left_right.py.

The documentation for this class was generated from the following file:

- [left_right.py \(1987\)](#)

3.91 rpk.left_right.repository_elt Class Reference

Inheritance diagram for rpk.left_right.repository_elt:



Public Member Functions

- def [call_pubd](#)
- def [object_delete](#)
- def [object_write](#)
- def [parents](#)
- def [publish](#)
- def [uri_to_filename](#)
- def [withdraw](#)

Static Public Attributes

- tuple [attributes](#) = ("action", "tag", "self_id", "repository_id", "bsc_id", "peer_contact_uri")

XML attributes for this element.

- [bpki_cms_cert](#) = None
- [bpki_cms_glue](#) = None
- [bpki_https_cert](#) = None
- [bpki_https_glue](#) = None
- string [element_name](#) = "repository"
- tuple [elements](#) = ("bpki_cms_cert", "bpki_cms_glue", "bpki_https_cert", "bpki_https_glue")

XML elements contained by this element.

- tuple [sql_template](#)
- [use_pubd](#) = True

3.91.1 Detailed Description

<repository/> element.

Definition at line 444 of file left_right.py.

3.91.2 Member Function Documentation

3.91.2.1 def rpkileft_right.repository_elt.call_pubd (*self*, *pdus*)

Send a message to publication daemon and return the response.

Definition at line 494 of file left_right.py.

3.91.2.2 def rpki.left_right.repository_elt.object_delete (*cls*, *base*, *uri*)

Delete an object from disk. [TEMPORARY]

Definition at line 489 of file left_right.py.

3.91.2.3 def rpki.left_right.repository_elt.object_write (*cls*, *base*, *uri*, *obj*)

Write an object to disk. [TEMPORARY]

Definition at line 477 of file left_right.py.

3.91.2.4 def rpki.left_right.repository_elt.parents (*self*)

Fetch all parent objects that link to this repository object.

Definition at line 462 of file left_right.py.

3.91.2.5 def rpki.left_right.repository_elt.publish (*self*, *obj*, *uri*)

Placeholder for publication operation. [TEMPORARY]

Definition at line 512 of file left_right.py.

3.91.2.6 def rpki.left_right.repository_elt.uri_to_filename (*base*, *uri*)

Convert a URI to a filename. [TEMPORARY]

Definition at line 467 of file left_right.py.

3.91.2.7 def rpki.left_right.repository_elt.withdraw (*self*, *obj*, *uri*)

Placeholder for publication withdrawal operation. [TEMPORARY]

Definition at line 521 of file left_right.py.

3.91.3 Member Data Documentation**3.91.3.1 tuple rpki.left_right.repository_elt.attributes = ("action", "tag", "self_id", "repository_id", "bsc_id", "peer_contact_uri") [static]**

XML attributes for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 448 of file left_right.py.

3.91.3.2 rpki.left_right.repository_elt.bpkı_cms_cert = None [static]

Definition at line 455 of file left_right.py.

3.91.3.3 rpki.left_right.repository_elt.bpkı_cms_glue = None [static]

Definition at line 456 of file left_right.py.

3.91.3.4 rpki.left_right.repository_elt.bpkı_https_cert = None [static]

Definition at line 457 of file left_right.py.

3.91.3.5 rpki.left_right.repository_elt.bpkı_https_glue = None [static]

Definition at line 458 of file left_right.py.

3.91.3.6 string rpki.left_right.repository_elt.element_name = "repository" [static]

Definition at line 447 of file left_right.py.

3.91.3.7 tuple rpki.left_right.repository_elt.elements = ("bpki_cms_cert", "bpki_cms_glue", "bpki_https_cert", "bpki_https_glue") [static]

XML elements contained by this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 449 of file left_right.py.

3.91.3.8 tuple rpki.left_right.repository_elt.sql_template [static]

Initial value:

```
rpki.sql.template("repository", "repository_id", "self_id", "bsc_id", "peer_contact_uri",
                  ("bpki_cms_cert", rpki.x509.X509), ("bpki_cms_glue", rpki.x509.X509),
                  ("bpki_https_cert", rpki.x509.X509), ("bpki_https_glue", rpki.x509.X509))
```

Definition at line 451 of file left_right.py.

3.91.3.9 rpki.left_right.repository_elt.use_pubd = True [static]

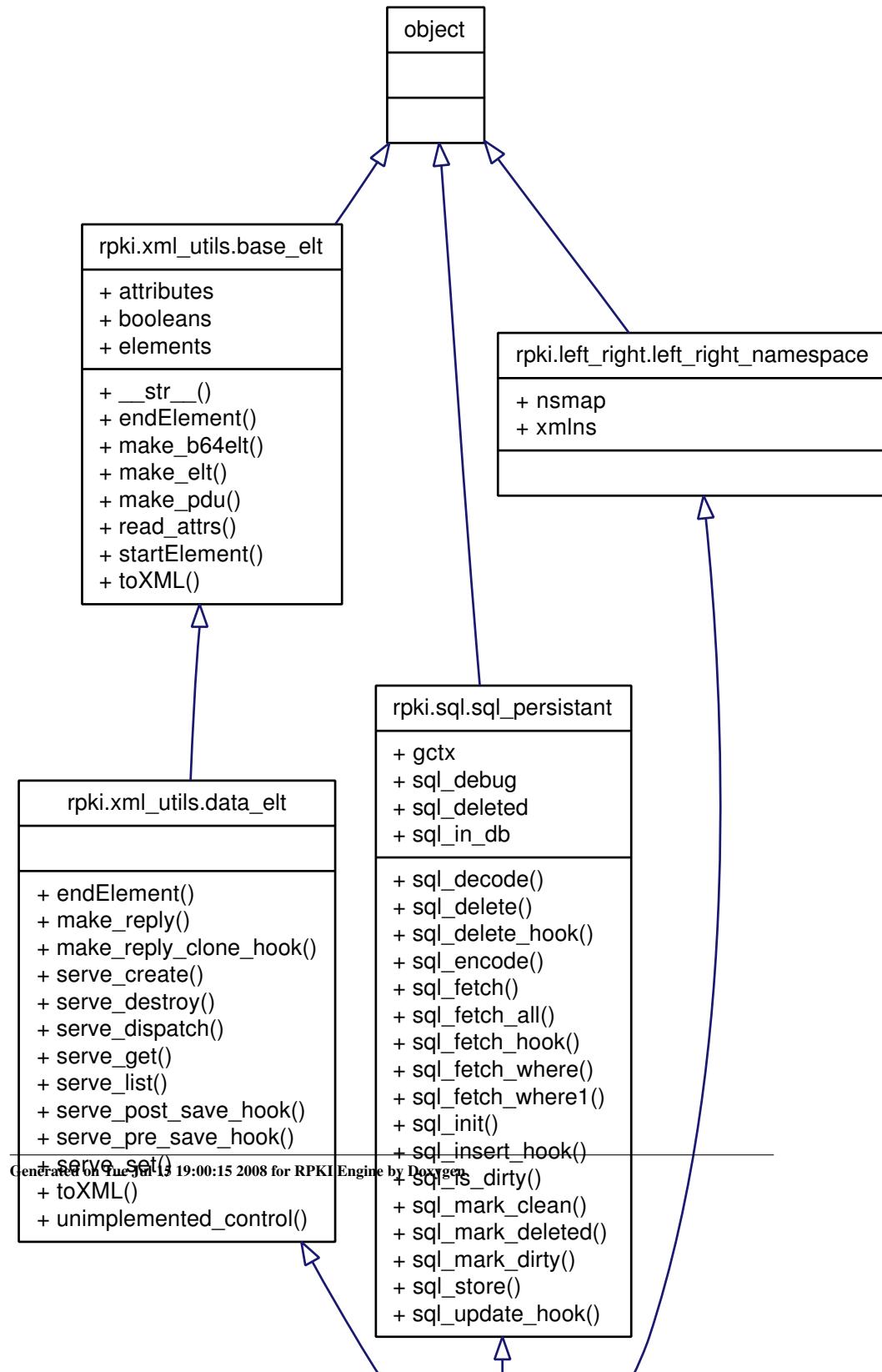
Definition at line 460 of file left_right.py.

The documentation for this class was generated from the following file:

- [left_right.py \(1987\)](#)

3.92 rpki.left_right.route_origin_elt Class Reference

Inheritance diagram for rpki.left_right.route_origin_elt:



Public Member Functions

- def [ca_detail](#)
- def [ee_uri](#)
- def [ee_uri_tail](#)
- def [generate_roa](#)
- def [regenerate_roa](#)
- def [roa_uri](#)
- def [roa_uri_tail](#)
- def [serve_post_save_hook](#)
- def [sql_delete_hook](#)
- def [sql_fetch_hook](#)
- def [sql_insert_hook](#)
- def [startElement](#)
- def [update_roa](#)
- def [withdraw_roa](#)

Public Attributes

- [as_number](#)
- [ipv4](#)
- [ipv6](#)

Static Public Attributes

- tuple [attributes](#) = ("action", "tag", "self_id", "route_origin_id", "[as_number](#)", "[ipv4](#)", "[ipv6](#)")
XML attributes for this element.
- tuple [booleans](#) = ("suppress_publication",)
Boolean attributes (value "yes" or "no") for this element.
- [ca_detail_id](#) = None
- [cert](#) = None
- string [element_name](#) = "route_origin"
- [publish_ee_separately](#) = False
Whether to publish the ROA EE certificate separately from the ROA.
- [roa](#) = None
- tuple [sql_template](#)

3.92.1 Detailed Description

<route_origin/> element.

Definition at line 530 of file left_right.py.

3.92.2 Member Function Documentation

3.92.2.1 def rpkileft_right.route_origin_elt.ca_detail (*self*)

Fetch all ca_detail objects that link to this route_origin object.

Definition at line 578 of file left_right.py.

3.92.2.2 def rpkileft_right.route_origin_elt.ee_uri (*self, ca*)

Return the publication URI for this route_origin's ROA's EE certificate.

Definition at line 742 of file left_right.py.

3.92.2.3 def rpkileft_right.route_origin_elt.ee_uri_tail (*self*)

Return the tail (filename) portion of the URI for this route_origin's ROA's EE certificate.

Definition at line 738 of file left_right.py.

3.92.2.4 def rpkileft_right.route_origin_elt.generate_roa (*self*)

Generate a ROA based on this <route_origin/> object.

At present this does not support ROAs with multiple signatures (neither does the current CMS code).

At present we have no way of performing a direct lookup from a desired set of resources to a covering certificate, so we have to search. This could be quite slow if we have a lot of active ca_detail objects. Punt on the issue for now, revisit if profiling shows this as a hotspot.

Once we have the right covering certificate, we generate the ROA payload, generate a new EE certificate, use the EE certificate to sign the ROA payload, publish the result, then throw away the private key for the EE cert, all per the ROA specification. This implies that generating a lot of ROAs will tend to thrash /dev/random, but there is not much we can do about that.

Definition at line 627 of file left_right.py.

3.92.2.5 def rpki.left_right.route_origin_elt.regenerate_roa (*self*)

Reissue ROA associated with this route_origin.

Definition at line 726 of file left_right.py.

3.92.2.6 def rpki.left_right.route_origin_elt.roa_uri (*self, ca, key = None*)

Return the publication URI for this route_origin's ROA.

Definition at line 730 of file left_right.py.

3.92.2.7 def rpki.left_right.route_origin_elt.roa_uri_tail (*self, key = None*)

Return the tail (filename portion) of the publication URI for this route_origin's ROA.

Definition at line 734 of file left_right.py.

3.92.2.8 def rpki.left_right.route_origin_elt.serve_post_save_hook (*self, q_pdu, r_pdu*)

Extra server actions for route_origin_elt.

Reimplemented from [rpki.xml_utils.data_elt](#).

Definition at line 582 of file left_right.py.

3.92.2.9 def rpki.left_right.route_origin_elt.sql_delete_hook (*self*)

Extra SQL delete actions for route_origin_elt -- handle address ranges.

Reimplemented from [rpki.sql.sql_persistent](#).

Definition at line 574 of file left_right.py.

3.92.2.10 def rpki.left_right.route_origin_elt.sql_fetch_hook (*self*)

Extra SQL fetch actions for route_origin_elt -- handle prefix list.

Reimplemented from [rpki.sql.sql_persistent](#).

Definition at line 550 of file left_right.py.

3.92.2.11 def rpki.left_right.route_origin_elt.sql_insert_hook (self)

Extra SQL insert actions for route_origin_elt -- handle address ranges.

Reimplemented from [rpki.sql.sql_persistent](#).

Definition at line 565 of file left_right.py.

3.92.2.12 def rpki.left_right.route_origin_elt.startElement (self, stack, name, attrs)

Handle <route_origin/> element. This requires special processing due to the data types of some of the attributes.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 586 of file left_right.py.

3.92.2.13 def rpki.left_right.route_origin_elt.update_roa (self)

Bring this route_origin's ROA up to date if necessary.

Definition at line 599 of file left_right.py.

3.92.2.14 def rpki.left_right.route_origin_elt.withdraw_roa (self, regenerate = False)

Withdraw ROA associated with this route_origin.

In order to preserve make-before-break properties without duplicating code, this method also handles generating a replacement ROA when requested.

Definition at line 696 of file left_right.py.

3.92.3 Member Data Documentation**3.92.3.1 rpki.left_right.route_origin_elt.as_number**

Reimplemented in [irbe_cli.route_origin_elt](#).

Definition at line 593 of file left_right.py.

3.92.3.2 tuple rpki.left_right.route_origin_elt.attributes = ("action", "tag", "self_id", "route_origin_id", "as_number", "ipv4", "ipv6") [static]

XML attributes for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 534 of file left_right.py.

3.92.3.3 tuple rpki.left_right.route_origin_elt.booleans = ("suppress_publication",) [static]

Boolean attributes (value "yes" or "no") for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 535 of file left_right.py.

3.92.3.4 rpki.left_right.route_origin_elt.ca_detail_id = None [static]

Definition at line 542 of file left_right.py.

3.92.3.5 rpki.left_right.route_origin_elt.cert = None [static]

Definition at line 543 of file left_right.py.

3.92.3.6 string rpki.left_right.route_origin_elt.element_name = "route_origin" [static]

Definition at line 533 of file left_right.py.

3.92.3.7 rpki.left_right.route_origin_elt.ipv4

Reimplemented in [irbe_cli.route_origin_elt](#).

Definition at line 552 of file left_right.py.

3.92.3.8 rpki.left_right.route_origin_elt.ipv6

Reimplemented in [irbe_cli.route_origin_elt](#).

Definition at line 558 of file left_right.py.

3.92.3.9 rpki::left_right.route_origin_elt::publish_ee_separately = False [static]

Whether to publish the ROA EE certificate separately from the ROA.

Definition at line 548 of file left_right.py.

3.92.3.10 rpki.left_right.route_origin_elt.roa = None [static]

Definition at line 544 of file left_right.py.

3.92.3.11 tuple rpki.left_right.route_origin_elt.sql_template [static]

Initial value:

```
rpki.sql.template("route_origin", "route_origin_id", "ca_detail_id",
                  "self_id", "as_number",
                  ("roa", rpki.x509.ROA),
                  ("cert", rpki.x509.X509))
```

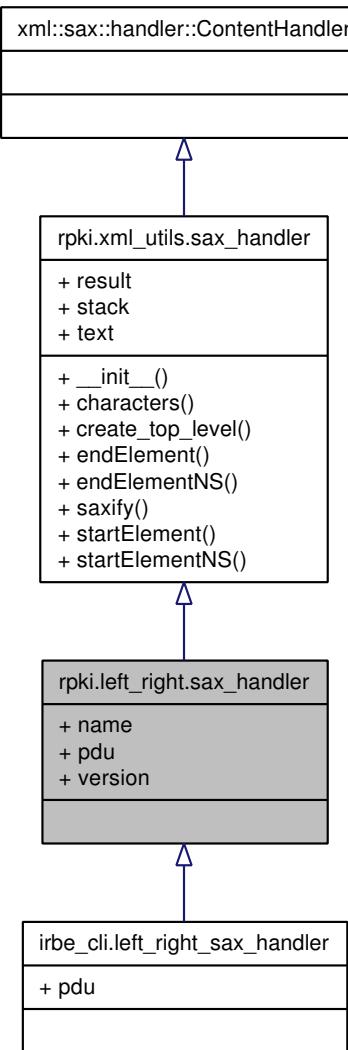
Definition at line 537 of file left_right.py.

The documentation for this class was generated from the following file:

- [left_right.py \(1987\)](#)

3.93 rpk.left_right.sax_handler Class Reference

Inheritance diagram for rpk.left_right.sax_handler:



Static Public Attributes

- string `name` = "msg"
- `pdu` = `msg`
- string `version` = "1"

3.93.1 Detailed Description

SAX handler for Left-Right protocol.

Definition at line 813 of file left_right.py.

3.93.2 Member Data Documentation

3.93.2.1 `string rpk.left_right.sax_handler.name = "msg" [static]`

Definition at line 817 of file left_right.py.

3.93.2.2 `rpk.left_right.sax_handler.pdu = msg [static]`

Reimplemented in [irbe_cli.left_right_sax_handler](#).

Definition at line 816 of file left_right.py.

3.93.2.3 `string rpk.left_right.sax_handler.version = "1" [static]`

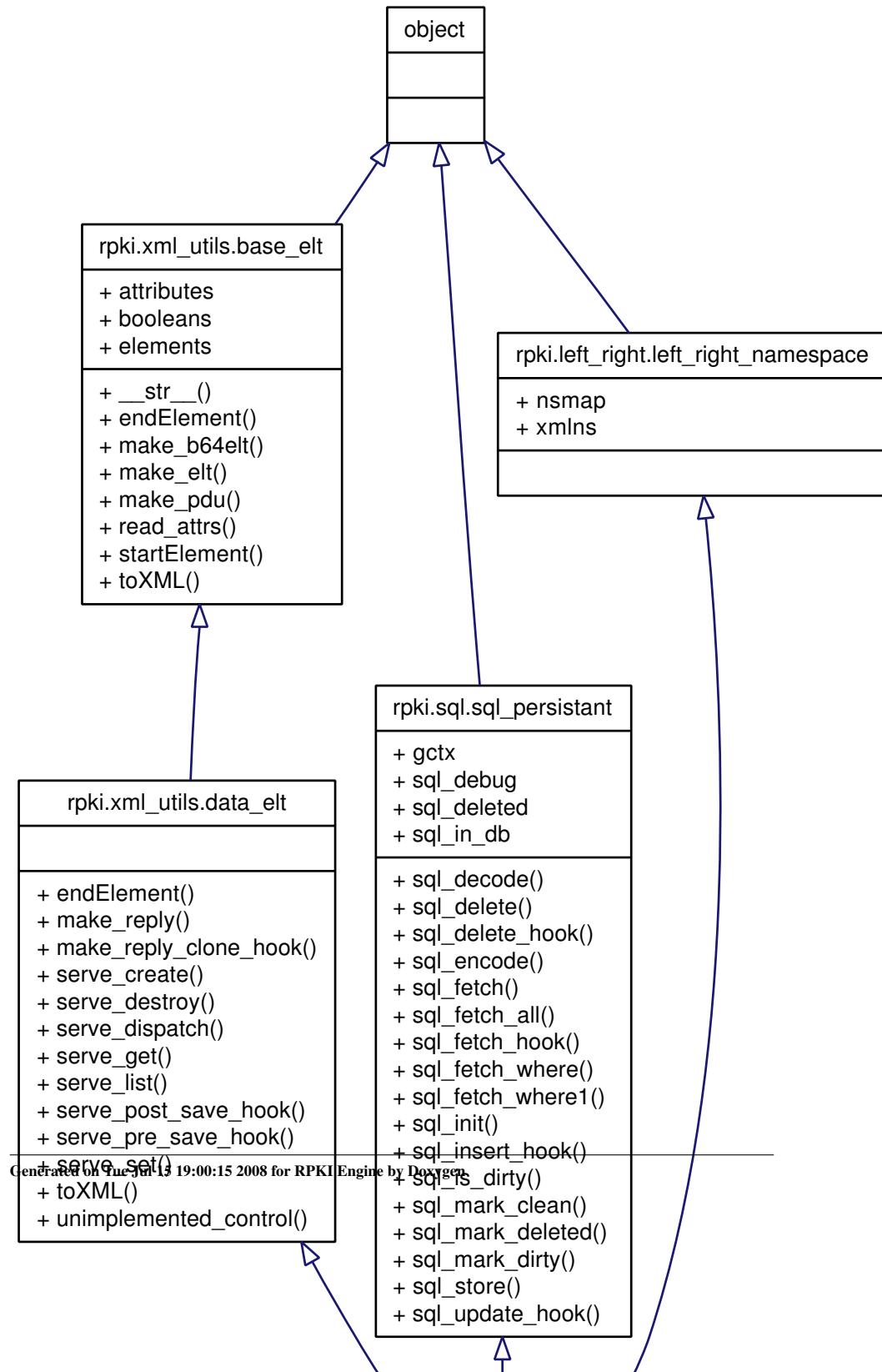
Definition at line 818 of file left_right.py.

The documentation for this class was generated from the following file:

- [left_right.py \(1987\)](#)

3.94 rpki.left_right.self_elt Class Reference

Inheritance diagram for rpki.left_right.self_elt:



Public Member Functions

- def `bscs`
- def `children`
- def `client_poll`
- def `parents`
- def `regenerate_crls_and_manifests`
- def `repositories`
- def `route_origins`
- def `serve_fetch_all`
- def `serve_fetch_one`
- def `serve_post_save_hook`
- def `serve_rekey`
- def `serve_revoke`
- def `update_children`
- def `update_roas`

Static Public Attributes

- tuple `attributes` = ("action", "tag", "self_id", "crl_interval", "regen_margin")
XML attributes for this element.
- tuple `booleans` = ("rekey", "reissue", "revoke", "run_now", "publish_world_now")
Boolean attributes (value "yes" or "no") for this element.
- `bpkı_cert` = None
- `bpkı_glue` = None
- `crl_interval` = None
- string `element_name` = "self"
- tuple `elements` = ("bpki_cert", "bpki_glue")
XML elements contained by this element.
- `regen_margin` = None
- `self_id` = None
- tuple `sql_template`
- `use_hsm` = False

3.94.1 Detailed Description

<self/> element.

Definition at line 70 of file left_right.py.

3.94.2 Member Function Documentation

3.94.2.1 def rpk.left_right.self_elt.bscs (*self*)

Fetch all BSC objects that link to this self object.

Definition at line 88 of file left_right.py.

3.94.2.2 def rpk.left_right.self_elt.children (*self*)

Fetch all child objects that link to this self object.

Definition at line 100 of file left_right.py.

3.94.2.3 def rpk.left_right.self_elt.client_poll (*self*)

Run the regular client poll cycle with each of this self's parents in turn.

Definition at line 145 of file left_right.py.

3.94.2.4 def rpk.left_right.self_elt.parents (*self*)

Fetch all parent objects that link to this self object.

Definition at line 96 of file left_right.py.

3.94.2.5 def rpk.left_right.self_elt.regenerate_crls_and_manifests (*self*)

Generate new CRLs and manifests as necessary for all of this self's CAs. Extracting nextUpdate from a manifest is hard at the moment due to implementation silliness, so for now we generate a new manifest whenever we generate a new CRL

This method also cleans up tombstones left behind by revoked ca_detail objects, since we're walking through the relevant portions of the database anyway.

Definition at line 204 of file left_right.py.

3.94.2.6 def rpk.left_right.self_elt.repositories (*self*)

Fetch all repository objects that link to this self object.

Definition at line 92 of file left_right.py.

3.94.2.7 def rpki.left_right.self_elt.route_origins (*self*)

Fetch all route_origin objects that link to this self object.

Definition at line 104 of file left_right.py.

3.94.2.8 def rpki.left_right.self_elt.serve_fetch_all (*self*)

Find the self objects upon which a list action should operate.
This is different from the list action for all other objects,
where list only works within a given self_id context.

Reimplemented from [rpki.left_right.data_elt](#).

Definition at line 138 of file left_right.py.

3.94.2.9 def rpki.left_right.self_elt.serve_fetch_one (*self*)

Find the self object upon which a get, set, or destroy action
should operate.

Reimplemented from [rpki.left_right.data_elt](#).

Definition at line 129 of file left_right.py.

3.94.2.10 def rpki.left_right.self_elt.serve_post_save_hook (*self, q_pdu, r_pdu*)

Extra server actions for self_elt.

Reimplemented from [rpki.xml_utils.data_elt](#).

Definition at line 108 of file left_right.py.

3.94.2.11 def rpki.left_right.self_elt.serve_rekey (*self*)

Handle a left-right rekey action for this self.

Definition at line 117 of file left_right.py.

3.94.2.12 def rpki.left_right.self_elt.serve_revoke (*self*)

Handle a left-right revoke action for this self.

Definition at line 123 of file left_right.py.

3.94.2.13 def rpki.left_right.self_elt.update_children (*self*)

Check for updated IRDB data for all of this *self*'s children and issue new certs as necessary. Must handle changes both in resources and in expiration date.

Definition at line 167 of file left_right.py.

3.94.2.14 def rpki.left_right.self_elt.update_roas (*self*)

Generate or update ROAs for this *self*'s route_origin objects.

Definition at line 229 of file left_right.py.

3.94.3 Member Data Documentation**3.94.3.1 tuple rpki.left_right.self_elt.attributes = ("action", "tag", "self_id", "crl_interval", "regen_margin") [static]**

XML attributes for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 74 of file left_right.py.

3.94.3.2 tuple rpki.left_right.self_elt.booleans = ("rekey", "reissue", "revoke", "run_now", "publish_world_now") [static]

Boolean attributes (value "yes" or "no") for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 76 of file left_right.py.

3.94.3.3 rpki.left_right.self_elt.bpk_i_cert = None [static]

Definition at line 85 of file left_right.py.

3.94.3.4 rpki.left_right.self_elt.bpk_i_glue = None [static]

Definition at line 86 of file left_right.py.

3.94.3.5 rpki.left_right.self_elt.crl_interval = None [static]

Definition at line 83 of file left_right.py.

3.94.3.6 string rpki.left_right.self_elt.element_name = "self" [static]

Definition at line 73 of file left_right.py.

3.94.3.7 tuple rpki.left_right.self_elt.elements = ("bpki_cert", "bpki_glue") [static]

XML elements contained by this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 75 of file left_right.py.

3.94.3.8 rpki.left_right.self_elt.regen_margin = None [static]

Definition at line 84 of file left_right.py.

3.94.3.9 rpki.left_right.self_elt.self_id = None [static]

Definition at line 81 of file left_right.py.

3.94.3.10 tuple rpki.left_right.self_elt.sql_template [static]

Initial value:

```
rpki.sql.template("self", "self_id", "use_hsm", "crl_interval", "regen_margin",
                  ("bpki_cert", rpki.x509.X509), ("bpki_glue", rpki.x509.X509))
```

Definition at line 78 of file left_right.py.

3.94.3.11 rpki.left_right.self_elt.use_hsm = False [static]

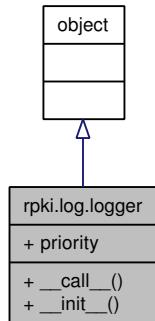
Definition at line 82 of file left_right.py.

The documentation for this class was generated from the following file:

- [left_right.py \(1987\)](#)

3.95 rpkilog.logger Class Reference

Inheritance diagram for rpkilog.logger:



Public Member Functions

- def `__call__`
- def `__init__`

Public Attributes

- `priority`

3.95.1 Detailed Description

Closure for logging.

Definition at line 38 of file log.py.

3.95.2 Member Function Documentation

3.95.2.1 def rpkilog.logger.__call__ (*self*, *message*)

Definition at line 44 of file log.py.

3.95.2.2 def rpkilog.logger.__init__ (*self*, *priority*)

Definition at line 41 of file log.py.

3.95.3 Member Data Documentation

3.95.3.1 rpki.log.logger.priority

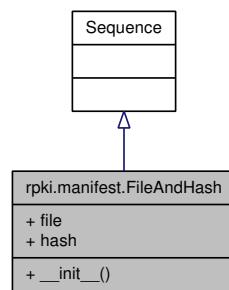
Definition at line 42 of file log.py.

The documentation for this class was generated from the following file:

- [log.py \(1873\)](#)

3.96 rpki.manifest.FileAndHash Class Reference

Inheritance diagram for rpki.manifest.FileAndHash:



Public Member Functions

- [def __init__](#)

Public Attributes

- [file](#)
- [hash](#)

3.96.1 Detailed Description

Definition at line 26 of file manifest.py.

3.96.2 Member Function Documentation

3.96.2.1 def rpki.manifest.FileAndHash.__init__ (self, optional = 0, default = '')

Definition at line 27 of file manifest.py.

3.96.3 Member Data Documentation

3.96.3.1 rpki.manifest.FileAndHash.file

Definition at line 28 of file manifest.py.

3.96.3.2 rpki.manifest.FileAndHash.hash

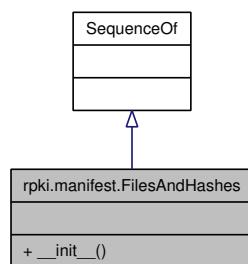
Definition at line 29 of file manifest.py.

The documentation for this class was generated from the following file:

- [manifest.py \(1873\)](#)

3.97 rpki.manifest.FilesAndHashes Class Reference

Inheritance diagram for rpki.manifest.FilesAndHashes:



Public Member Functions

- [def `__init__`](#)

3.97.1 Detailed Description

Definition at line 33 of file manifest.py.

3.97.2 Member Function Documentation

3.97.2.1 def rpki.manifest.FilesAndHashes.`__init__` (*self*, *optional* = 0, *default* = '')

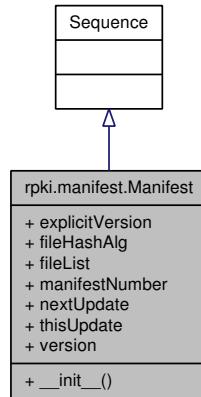
Definition at line 34 of file manifest.py.

The documentation for this class was generated from the following file:

- [manifest.py \(1873\)](#)

3.98 rpki.manifest.Manifest Class Reference

Inheritance diagram for rpki.manifest.Manifest:



Public Member Functions

- def [`__init__`](#)

Public Attributes

- [explicitVersion](#)
- [fileHashAlg](#)
- [fileList](#)
- [manifestNumber](#)
- [nextUpdate](#)
- [thisUpdate](#)
- [version](#)

3.98.1 Detailed Description

Definition at line 37 of file `manifest.py`.

3.98.2 Member Function Documentation

3.98.2.1 def rpki.manifest.Manifest.[`__init__`](#) (*self*, *optional* = 0, *default* = "")

Definition at line 38 of file manifest.py.

3.98.3 Member Data Documentation

3.98.3.1 rpkি.manifest.Manifest.explicitVersion

Definition at line 40 of file manifest.py.

3.98.3.2 rpkি.manifest.Manifest.fileHashAlg

Definition at line 44 of file manifest.py.

3.98.3.3 rpkি.manifest.Manifest fileList

Definition at line 45 of file manifest.py.

3.98.3.4 rpkি.manifest.Manifest.manifestNumber

Definition at line 41 of file manifest.py.

3.98.3.5 rpkি.manifest.Manifest.nextUpdate

Definition at line 43 of file manifest.py.

3.98.3.6 rpkি.manifest.Manifest.thisUpdate

Definition at line 42 of file manifest.py.

3.98.3.7 rpkি.manifest.Manifest.version

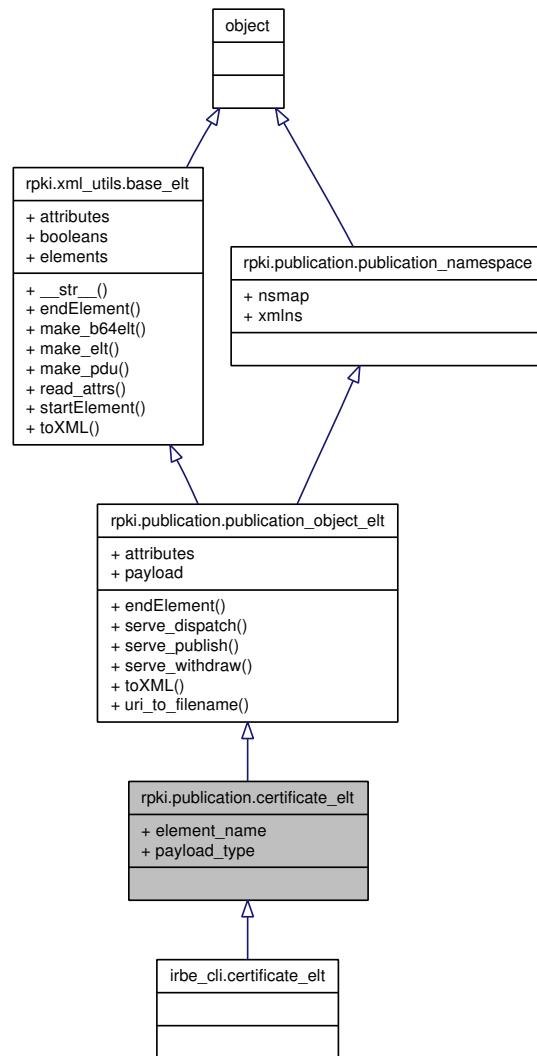
Definition at line 39 of file manifest.py.

The documentation for this class was generated from the following file:

- [manifest.py \(1873\)](#)

3.99 rpk.publication.certificate_elt Class Reference

Inheritance diagram for rpk.publication.certificate_elt:



Static Public Attributes

- string `element_name` = "certificate"
- `payload_type` = [rpk.x509.X509](#)

3.99.1 Detailed Description

<certificate/> element.

Definition at line 205 of file publication.py.

3.99.2 Member Data Documentation

3.99.2.1 string rpki.publication.certificate_elt.element_name = "certificate"
[static]

Definition at line 208 of file publication.py.

3.99.2.2 rpki.publication.certificate_elt.payload_type = rpki.x509.X509
[static]

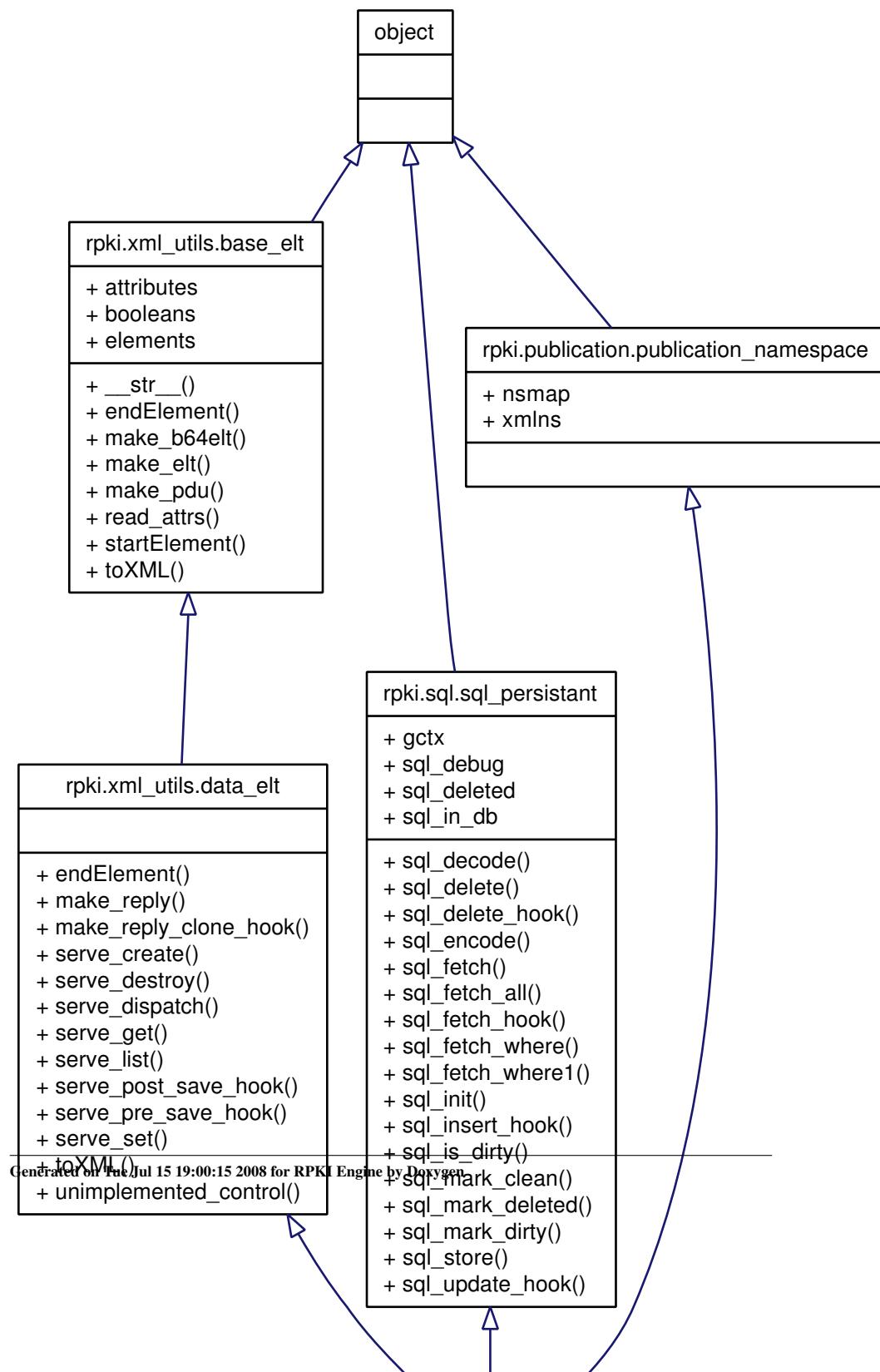
Definition at line 209 of file publication.py.

The documentation for this class was generated from the following file:

- [publication.py \(1914\)](#)

3.100 rpk.publication.client_elt Class Reference

Inheritance diagram for rpk.publication.client_elt:



Public Member Functions

- def [check_allowed_uri](#)
- def [endElement](#)
- def [serve_fetch_all](#)
- def [serve_fetch_one](#)
- def [serve_post_save_hook](#)

Static Public Attributes

- tuple [attributes](#) = ("action", "tag", "client_id", "base_uri")
XML attributes for this element.
- [base_uri](#) = None
- [bpki_cert](#) = None
- [bpki_glue](#) = None
- [clear_https_ta_cache](#) = False
- string [element_name](#) = "client"
- tuple [elements](#) = ("bpki_cert", "bpki_glue")
XML elements contained by this element.
- tuple [sql_template](#) = [rpki.sql.template](#)("client", "client_id", "base_uri", ("bpki_cert", rpki.x509.X509), ("bpki_glue", rpki.x509.X509))

3.100.1 Detailed Description

<client/> element.

Definition at line 91 of file publication.py.

3.100.2 Member Function Documentation

3.100.2.1 def rpk.publication.client_elt.check_allowed_uri (*self*, *uri*)

Definition at line 134 of file publication.py.

3.100.2.2 def rpk.publication.client_elt.endElement (*self*, *stack*, *name*, *text*)

Handle subelements of <client/> element. These require special handling because modifying them invalidates the HTTPS trust anchor cache.

Reimplemented from [rpki.xml_utils.data_elt](#).

Definition at line 106 of file publication.py.

3.100.2.3 def rpki.publication.client_elt.serve_fetch_all (self)

Find client objects on which a list method should operate.

Definition at line 130 of file publication.py.

3.100.2.4 def rpki.publication.client_elt.serve_fetch_one (self)

Find the client object on which a get, set, or destroy method should operate.

Definition at line 121 of file publication.py.

3.100.2.5 def rpki.publication.client_elt.serve_post_save_hook (self, q_pdu, r_pdu)

Extra server actions for client_elt.

Reimplemented from [rpki.xml_utils.data_elt](#).

Definition at line 115 of file publication.py.

3.100.3 Member Data Documentation

3.100.3.1 tuple rpki.publication.client_elt.attributes = ("action", "tag", "client_id", "base_uri") [static]

XML attributes for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 95 of file publication.py.

3.100.3.2 rpki.publication.client_elt.base_uri = None [static]

Definition at line 100 of file publication.py.

3.100.3.3 rpki.publication.client_elt.bpkı_cert = None [static]

Definition at line 101 of file publication.py.

3.100.3.4 rpki.publication.client_elt.bpkı_glue = None [static]

Definition at line 102 of file publication.py.

3.100.3.5 rpki.publication.client_elt.clear_https_ta_cache = False [static]

Definition at line 104 of file publication.py.

3.100.3.6 string rpki.publication.client_elt.element_name = "client" [static]

Definition at line 94 of file publication.py.

3.100.3.7 tuple rpki.publication.client_elt.elements = ("bpki_cert", "bpki_glue") [static]

XML elements contained by this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 96 of file publication.py.

3.100.3.8 tuple rpki.publication.client_elt.sql_template = rpki.sql.template("client", "client_id", "base_uri", ("bpki_cert", rpki.x509.X509), ("bpki_glue", rpki.x509.X509)) [static]

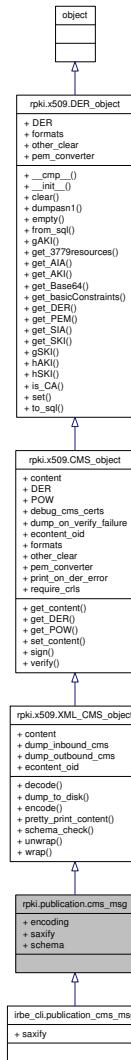
Definition at line 98 of file publication.py.

The documentation for this class was generated from the following file:

- [publication.py \(1914\)](#)

3.101 rpk.publication.cms_msg Class Reference

Inheritance diagram for rpk.publication.cms_msg:



Static Public Attributes

- string **encoding** = "us-ascii"
- **saxify** = sax_handler.saxify
- **schema** = rpk.relaxng.publication

3.101.1 Detailed Description

Class to hold a CMS-signed publication PDU.

Definition at line 277 of file publication.py.

3.101.2 Member Data Documentation

3.101.2.1 string rpkি.publication.cms_msg.encoding = "us-ascii" [static]

Definition at line 280 of file publication.py.

3.101.2.2 rpkি.publication.cms_msg.saxify = sax_handler.saxify [static]

Reimplemented in [irbe_cli.publication_cms_msg](#).

Definition at line 282 of file publication.py.

3.101.2.3 rpkি.publication.cms_msg.schema = rpkি.relaxng.publication [static]

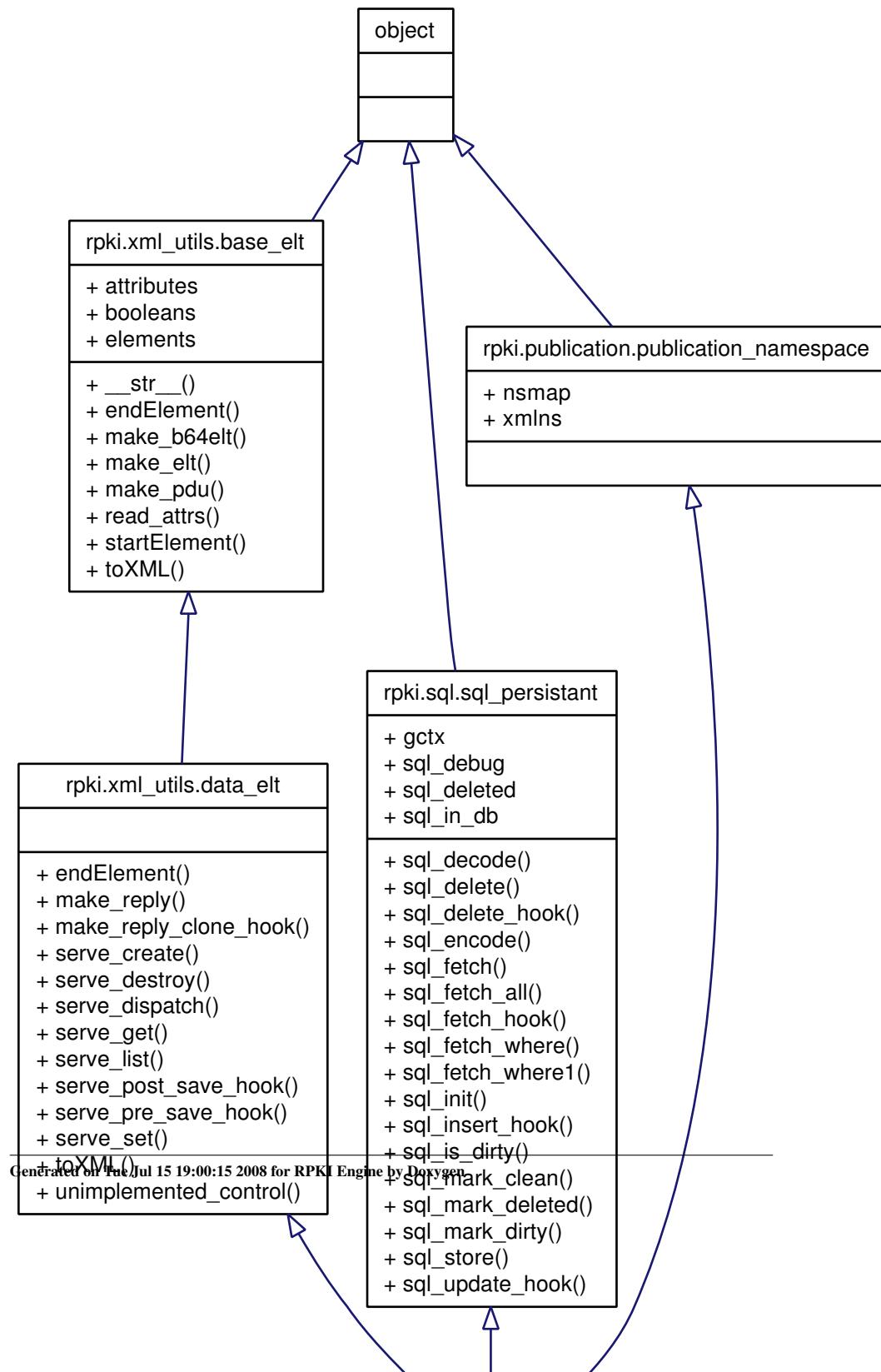
Definition at line 281 of file publication.py.

The documentation for this class was generated from the following file:

- [publication.py \(1914\)](#)

3.102 rpki.publication.config_elt Class Reference

Inheritance diagram for rpki.publication.config_elt:



Public Member Functions

- def `fetch`
- def `serve_fetch_one`
- def `serve_set`
- def `startElement`

Public Attributes

- `config_id`

Static Public Attributes

- tuple `attributes` = ("action", "tag")
XML attributes for this element.
- string `element_name` = "config"
- tuple `elements` = ("bpki_crl",)
XML elements contained by this element.
- tuple `sql_template` = `rpki.sql.template("config", "config_id", ("bpki_crl", rpki.x509.CRL))`
- int `wired_in_config_id` = 1

3.102.1 Detailed Description

<config/> element. This is a little weird because there should never be more than one row in the SQL config table, but we have to put the BPKI CRL somewhere and SQL is the least bad place available.

So we reuse a lot of the SQL machinery, but we nail `config_id` at 1, we don't expose it in the XML protocol, and we only support the get and set actions.

Definition at line 41 of file publication.py.

3.102.2 Member Function Documentation

3.102.2.1 def rpki.publication.config_elt.fetch (*cls, gctx*)

Fetch the config object from SQL. This requires special handling because of the weird way we treat `config_id`.

Definition at line 67 of file publication.py.

3.102.2.2 def rpki.publication.config_elt.serve_fetch_one (*self*)

Find the config object on which a get or set method should operate.

Definition at line 82 of file publication.py.

3.102.2.3 def rpki.publication.config_elt.serve_set (*self, r_msg*)

Handle a set action. This requires special handling because config we don't support the create method.

Reimplemented from [rpki.xml_utils.data_elt](#).

Definition at line 73 of file publication.py.

3.102.2.4 def rpki.publication.config_elt.startElement (*self, stack, name, attrs*)

StartElement() handler for config object. This requires special handling because of the weird way we treat config_id.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 59 of file publication.py.

3.102.3 Member Data Documentation**3.102.3.1 tuple rpki.publication.config_elt.attributes = ("action", "tag")
[static]**

XML attributes for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 51 of file publication.py.

3.102.3.2 rpki.publication.config_elt.config_id

Definition at line 64 of file publication.py.

**3.102.3.3 string rpki.publication.config_elt.element_name = "config"
[static]**

Definition at line 52 of file publication.py.

3.102.3.4 tuple rpki.publication.config_elt.elements = ("bpki_crl",)
[static]

XML elements contained by this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 53 of file publication.py.

3.102.3.5 tuple rpki.publication.config_elt.sql_template = rpki.sql.template("config", "config_id", ("bpki_crl", rpki.x509.CRL))
[static]

Definition at line 55 of file publication.py.

3.102.3.6 int rpki.publication.config_elt.wired_in_config_id = 1 [static]

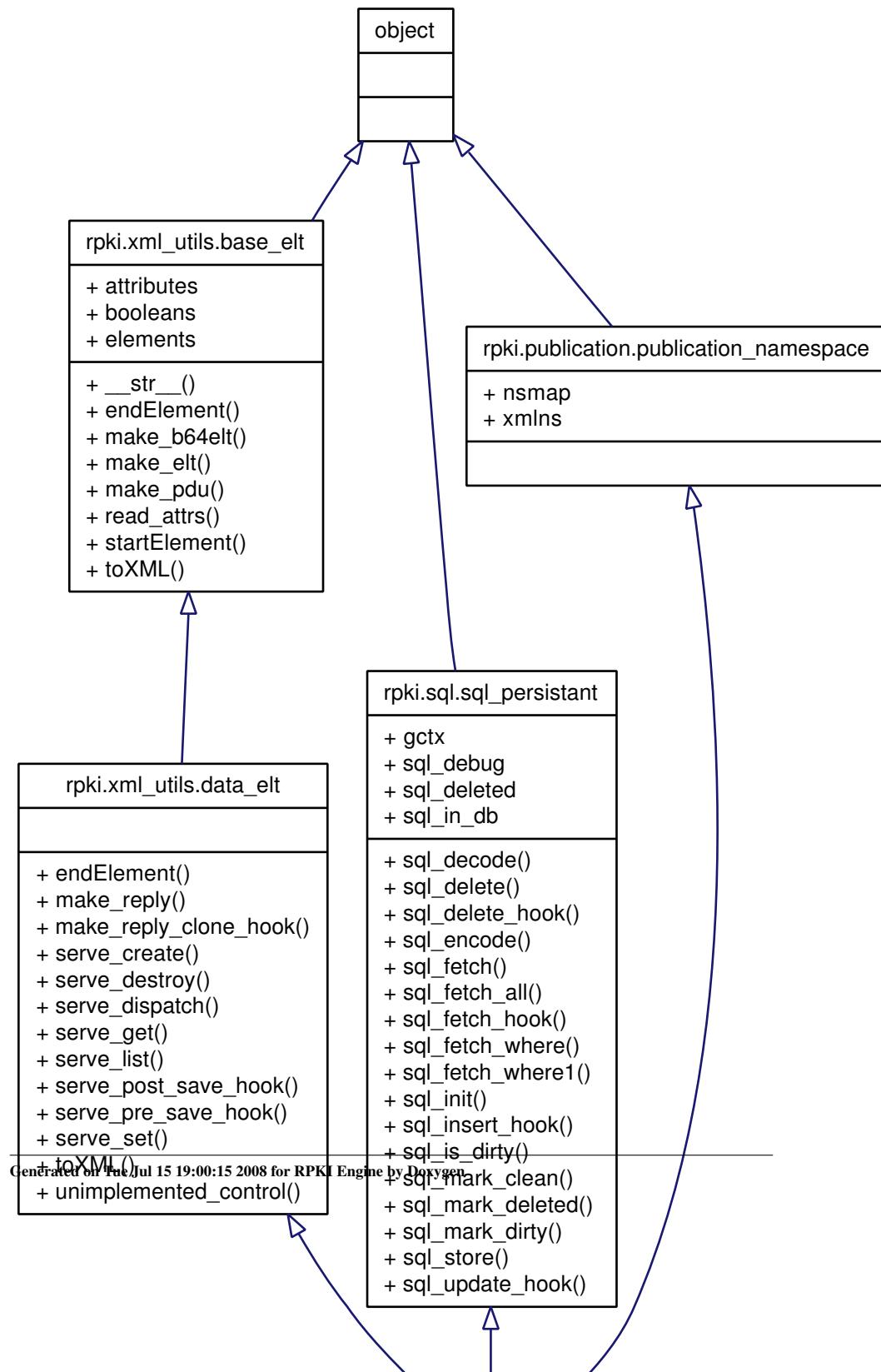
Definition at line 57 of file publication.py.

The documentation for this class was generated from the following file:

- [publication.py \(1914\)](#)

3.103 rpki.publication.control_elt Class Reference

Inheritance diagram for rpki.publication.control_elt:



Public Member Functions

- def [serve_dispatch](#)

3.103.1 Detailed Description

Virtual class for control channel objects.

Definition at line 30 of file publication.py.

3.103.2 Member Function Documentation

3.103.2.1 def rpk.publication.control_elt.serve_dispatch (*self*, *r_msg*, *client*)

Action dispatch handler. This needs special handling because we need to make sure that this PDU arrived via the control channel.

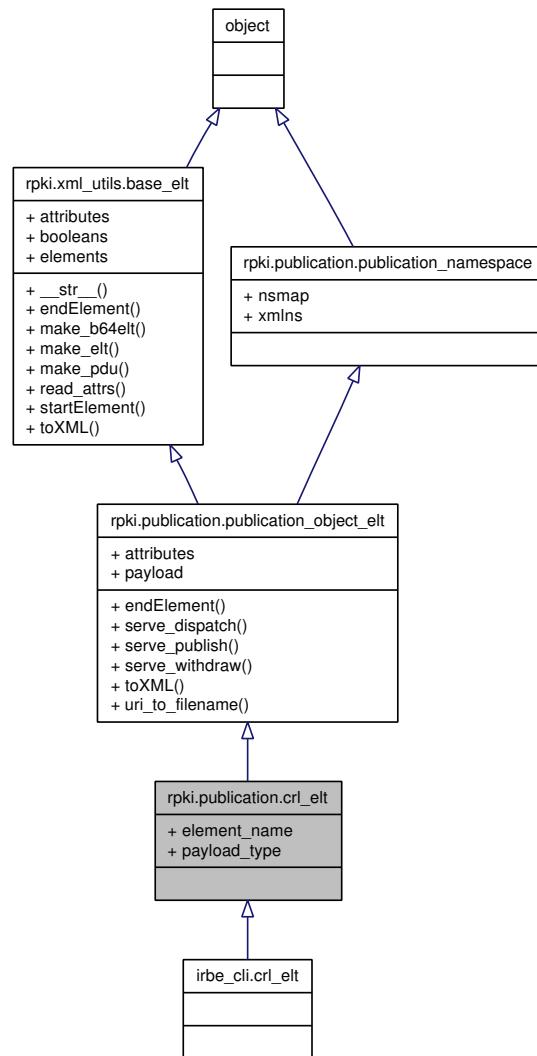
Definition at line 33 of file publication.py.

The documentation for this class was generated from the following file:

- [publication.py \(1914\)](#)

3.104 rpkি.publication.crl_elt Class Reference

Inheritance diagram for rpkি.publication.crl_elt:



Static Public Attributes

- string `element_name` = "crl"
- `payload_type` = [rpkি.x509.CRL](#)

3.104.1 Detailed Description

```
<crl/> element.
```

Definition at line 211 of file publication.py.

3.104.2 Member Data Documentation

3.104.2.1 string rpki.publication.crl_elt.element_name = "crl" [static]

Definition at line 214 of file publication.py.

3.104.2.2 rpki.publication.crl_elt.payload_type = rpki.x509.CRL [static]

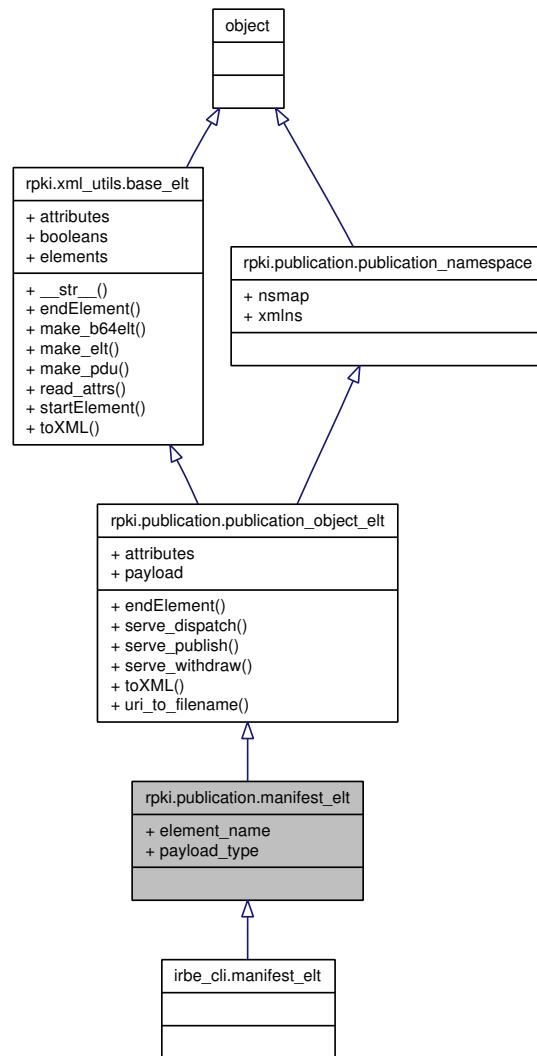
Definition at line 215 of file publication.py.

The documentation for this class was generated from the following file:

- [publication.py \(1914\)](#)

3.105 rpki.publication.manifest_elt Class Reference

Inheritance diagram for rpki.publication.manifest_elt:



Static Public Attributes

- string `element_name` = "manifest"
- `payload_type` = [rpki.x509.SignedManifest](#)

3.105.1 Detailed Description

<manifest/> element.

Definition at line 217 of file publication.py.

3.105.2 Member Data Documentation

3.105.2.1 string rpki.publication.manifest_elt.element_name = "manifest"
[static]

Definition at line 220 of file publication.py.

3.105.2.2 rpki.publication.manifest_elt.payload_type = rpki.x509.SignedManifest [static]

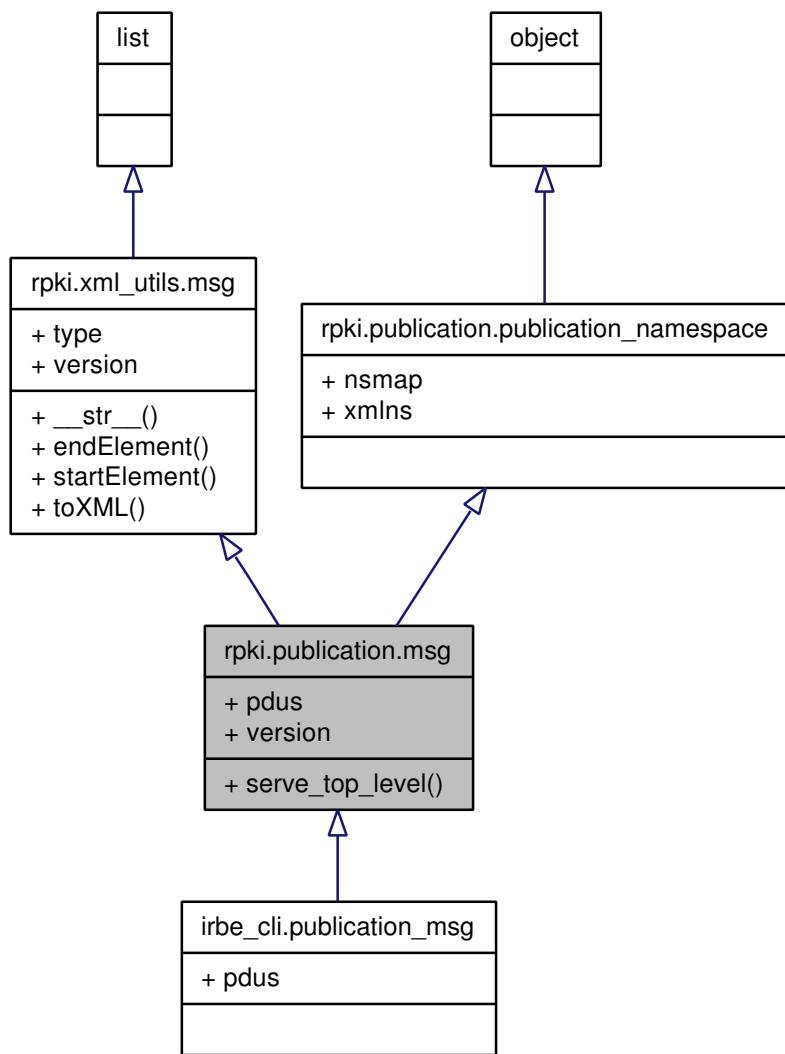
Definition at line 221 of file publication.py.

The documentation for this class was generated from the following file:

- [publication.py \(1914\)](#)

3.106 rpk.publication.msg Class Reference

Inheritance diagram for rpk.publication.msg:



Public Member Functions

- def [serve_top_level](#)

Static Public Attributes

- tuple **pdus**
Dispatch table of PDUs for this protocol.
- int **version** = 1
Protocol version.

3.106.1 Detailed Description

Publication PDU.

Definition at line 247 of file publication.py.

3.106.2 Member Function Documentation

3.106.2.1 def rpki.publication.msg.serve_top_level (*self*, *gctx*, *client*)

Serve one msg PDU.

Definition at line 259 of file publication.py.

3.106.3 Member Data Documentation

3.106.3.1 rpki::publication.msg::pdus [static]

Initial value:

```
dict((x.element_name, x)
     for x in (config_elt, client_elt, certificate_elt, crl_elt, manifest_elt, roa_elt, rep
```

Dispatch table of PDUs for this protocol.

Reimplemented in [irbe_cli.publication_msg](#).

Definition at line 256 of file publication.py.

3.106.3.2 rpki::publication.msg::version = 1 [static]

Protocol version.

Reimplemented from [rpki.xml_utils.msg](#).

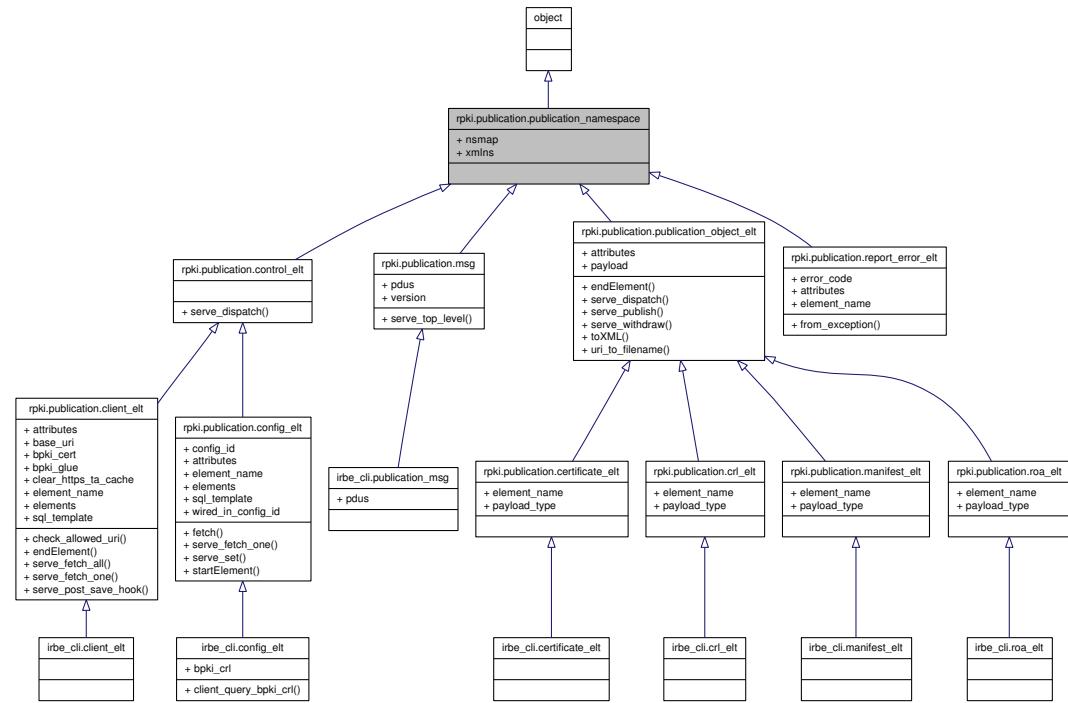
Definition at line 252 of file publication.py.

The documentation for this class was generated from the following file:

- publication.py (1914)

3.107 rpki.publication.publication_namespace Class Reference

Inheritance diagram for rpki.publication.publication_namespace:



Static Public Attributes

- dictionary `nsmap` = { None : `xmlns` }
- string `xmlns` = "http://www.hactrn.net/uris/rpki/publication-spec/"

3.107.1 Detailed Description

XML namespace parameters for publication protocol.

Definition at line 24 of file publication.py.

3.107.2 Member Data Documentation

3.107.2.1 dictionary rpki.publication.publication_namespace.nsmap = { None : xmlns } [static]

Definition at line 28 of file publication.py.

3.107.2.2 string rpki.publication.publication_namespace.xmlns = "http://www.hactrn.net/uris/rpki/publication-spec/" [static]

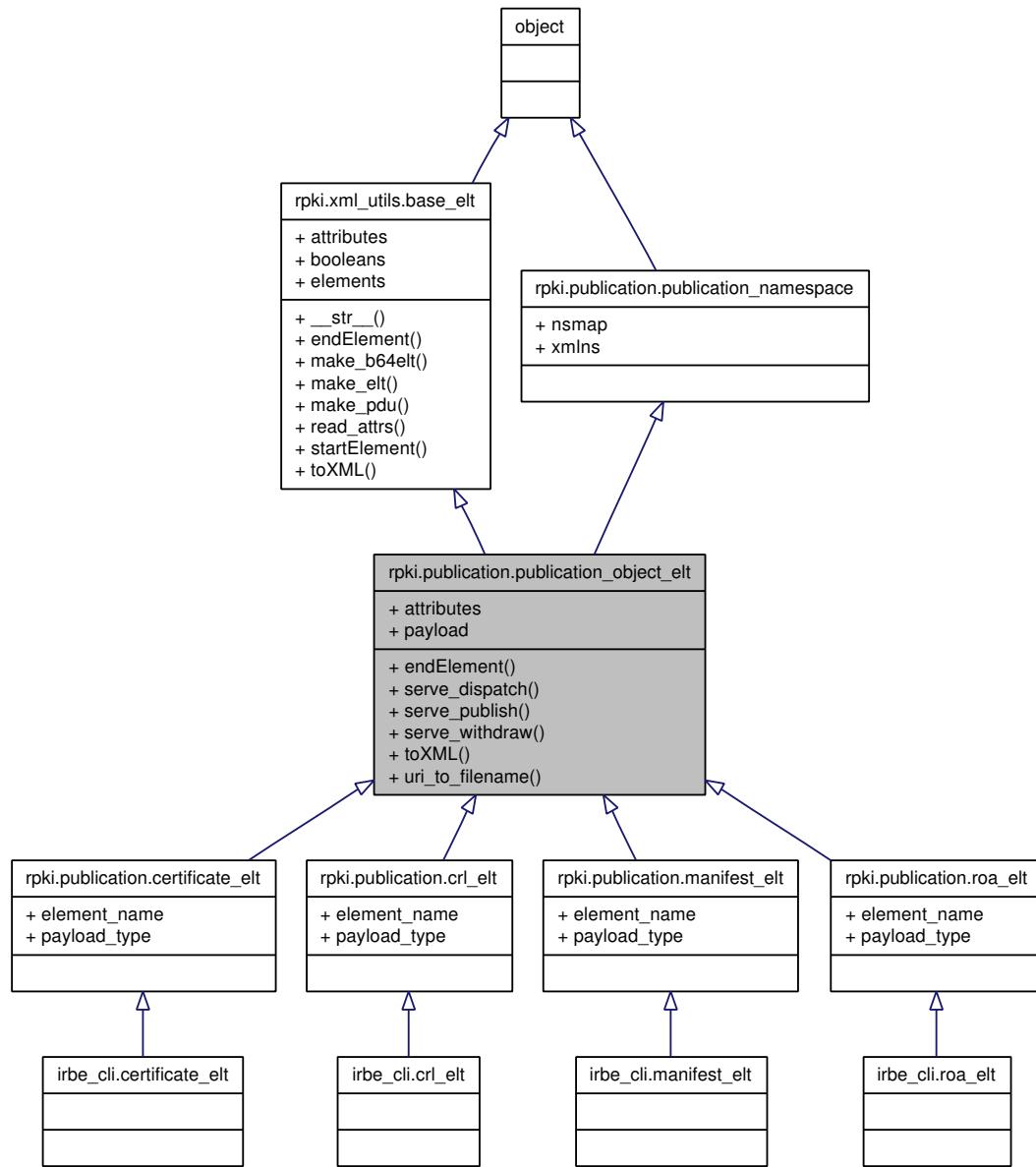
Definition at line 27 of file publication.py.

The documentation for this class was generated from the following file:

- [publication.py \(1914\)](#)

3.108 rpkি.publication.publication_object_elt Class Reference

Inheritance diagram for rpkি.publication.publication_object_elt:



Public Member Functions

- def [endElement](#)
- def [serve_dispatch](#)
- def [serve_publish](#)
- def [serve_withdraw](#)
- def [toXML](#)
- def [uri_to_filename](#)

Static Public Attributes

- tuple [attributes](#) = ("action", "tag", "client_id", "uri")
XML attributes for this element.
- [payload](#) = None

3.108.1 Detailed Description

Virtual class for publishable objects. These have very similar syntax, differences lie in underlying datatype and methods. XML methods are a little different from the pattern used for objects that support the create/set/get/list/destroy actions, but publishable objects don't go in SQL either so these classes would be different in any case.

Definition at line 138 of file publication.py.

3.108.2 Member Function Documentation

3.108.2.1 def rpki.publication.publication_object_elt.endElement (*self*, *stack*, *name*, *text*)

Handle a publishable element element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 150 of file publication.py.

3.108.2.2 def rpki.publication.publication_object_elt.serve_dispatch (*self*, *r-msg*, *client*)

Action dispatch handler.

Definition at line 164 of file publication.py.

3.108.2.3 def rpki.publication.publication_object_elt.serve_publish (*self*)

Publish an object.

Definition at line 180 of file publication.py.

3.108.2.4 def rpki.publication.publication_object_elt.serve_withdraw (*self*)

Withdraw an object.

Definition at line 191 of file publication.py.

3.108.2.5 def rpki.publication.publication_object_elt.toXML (*self*)

Generate XML element for publishable object.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 157 of file publication.py.

3.108.2.6 def rpki.publication.publication_object_elt.uri_to_filename (*self*)

Convert a URI to a local filename.

Definition at line 196 of file publication.py.

3.108.3 Member Data Documentation**3.108.3.1 tuple rpki.publication.publication_object_elt.attributes = ("action", "tag", "client_id", "uri") [static]**

XML attributes for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 147 of file publication.py.

3.108.3.2 rpki.publication.publication_object_elt.payload = None [static]

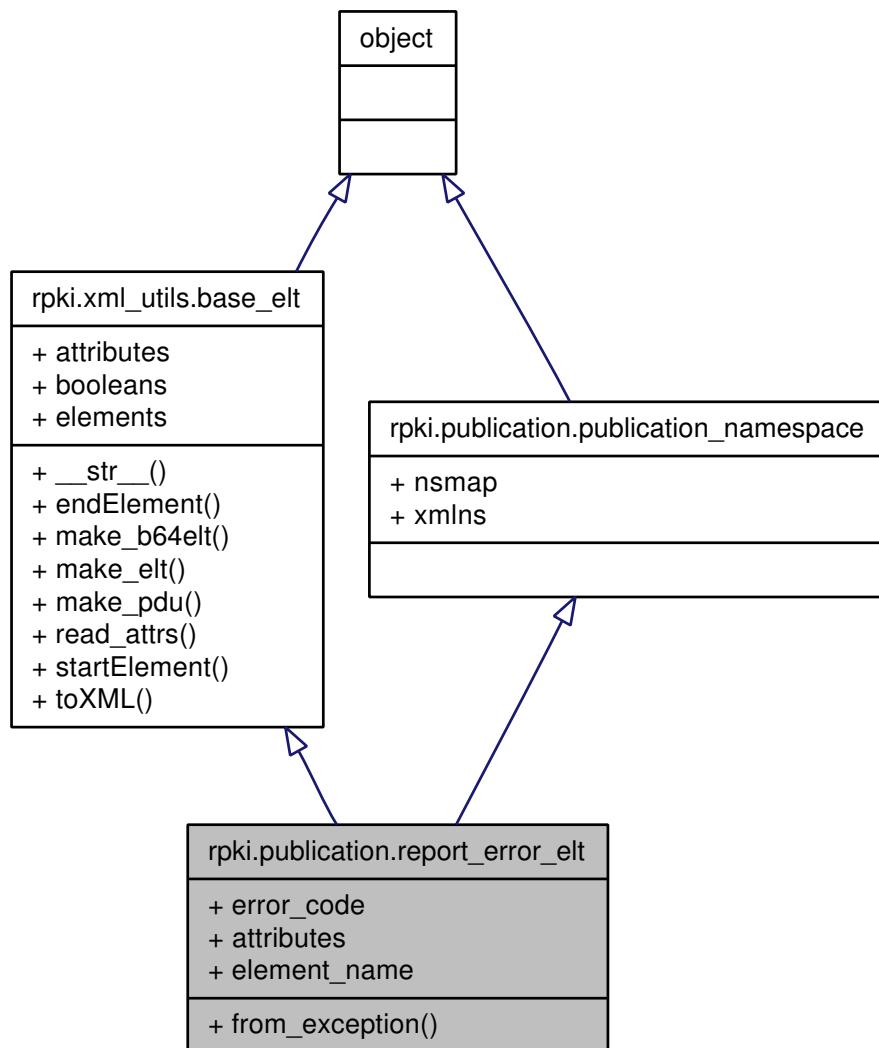
Definition at line 148 of file publication.py.

The documentation for this class was generated from the following file:

- [publication.py \(1914\)](#)

3.109 rpki.publication.report_error_elt Class Reference

Inheritance diagram for rpki.publication.report_error_elt:



Public Member Functions

- def [from_exception](#)

Public Attributes

- [error_code](#)

Static Public Attributes

- tuple [attributes](#) = ("tag", "error_code")
XML attributes for this element.
- string [element_name](#) = "report_error"

3.109.1 Detailed Description

<report_error/> element.

Definition at line 234 of file publication.py.

3.109.2 Member Function Documentation

3.109.2.1 def rpki.publication.report_error_elt.from_exception (*cls, exc*)

Generate a <report_error/> element from an exception.

Definition at line 241 of file publication.py.

3.109.3 Member Data Documentation

3.109.3.1 tuple rpki.publication.report_error_elt.attributes = ("tag", "error_code") [static]

XML attributes for this element.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 238 of file publication.py.

3.109.3.2 string rpki.publication.report_error_elt.element_name = "report_error" [static]

Definition at line 237 of file publication.py.

3.109.3.3 rpki.publication.report_error_elt.error_code

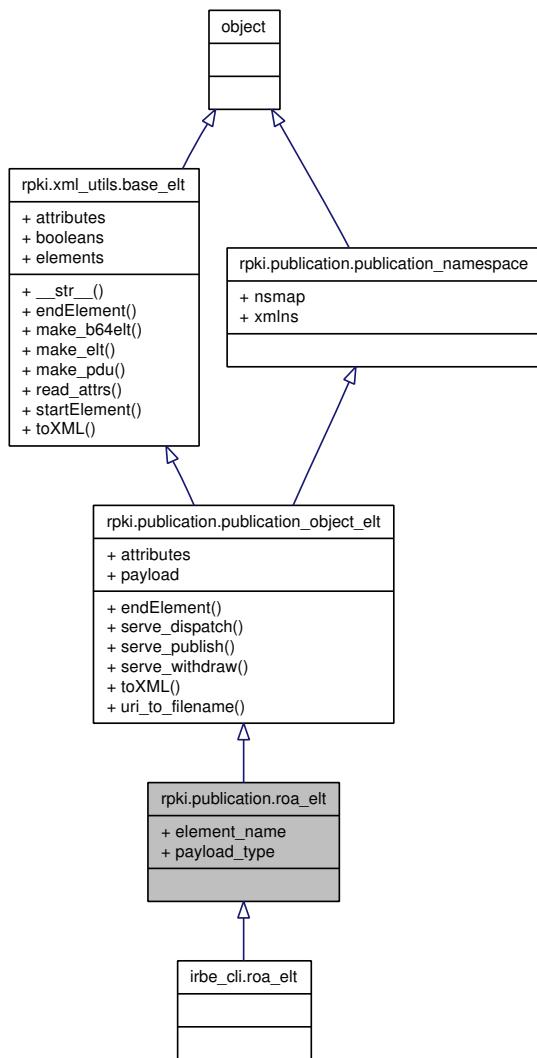
Definition at line 244 of file publication.py.

The documentation for this class was generated from the following file:

- [publication.py \(1914\)](#)

3.110 rpki.publication.roa_elt Class Reference

Inheritance diagram for rpki.publication.roa_elt:



Static Public Attributes

- string `element_name` = "roa"
- `payload_type` = `rpkix509.ROA`

3.110.1 Detailed Description

`<roa/>` element.

Definition at line 223 of file publication.py.

3.110.2 Member Data Documentation

3.110.2.1 string rpki.publication.roa_elt.element_name = "roa" [static]

Definition at line 226 of file publication.py.

3.110.2.2 rpki.publication.roa_elt.payload_type = rpkix509.ROA [static]

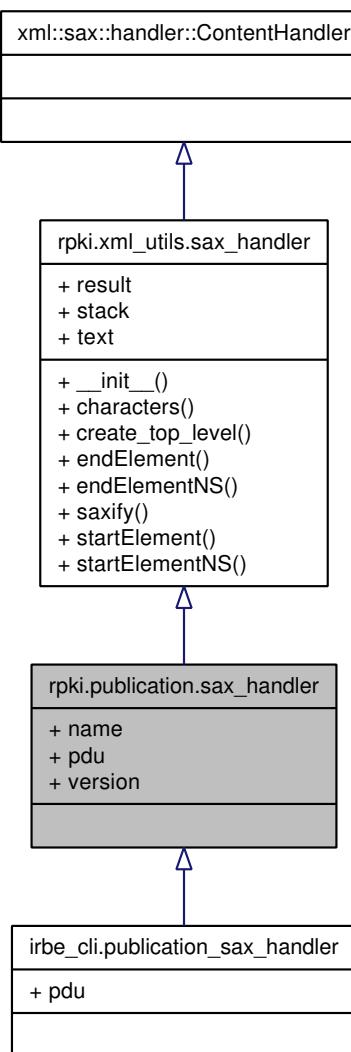
Definition at line 227 of file publication.py.

The documentation for this class was generated from the following file:

- [publication.py \(1914\)](#)

3.111 rpk.publication.sax_handler Class Reference

Inheritance diagram for rpk.publication.sax_handler:



Static Public Attributes

- string `name` = "msg"
- `pdu` = `msg`
- string `version` = "1"

3.111.1 Detailed Description

SAX handler for publication protocol.

Definition at line 270 of file publication.py.

3.111.2 Member Data Documentation

3.111.2.1 string rpkি.publication.sax_handler.name = "msg" [static]

Definition at line 274 of file publication.py.

3.111.2.2 rpkি.publication.sax_handler.pdu = msg [static]

Reimplemented in [irbe_cli.publication_sax_handler](#).

Definition at line 273 of file publication.py.

3.111.2.3 string rpkি.publication.sax_handler.version = "1" [static]

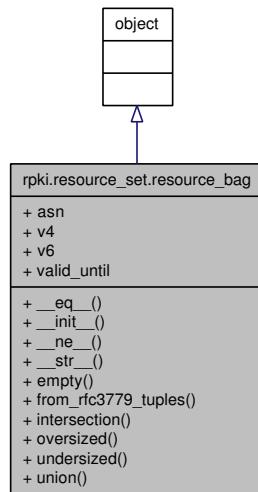
Definition at line 275 of file publication.py.

The documentation for this class was generated from the following file:

- [publication.py \(1914\)](#)

3.112 rpkি.resource_set.resource_bag Class Reference

Inheritance diagram for rpkি.resource_set.resource_bag:



Public Member Functions

- def `__eq__`
- def `__init__`
- def `__ne__`
- def `__str__`
- def `empty`
- def `from_rfc3779_tuples`
- def `intersection`
- def `oversized`
- def `undersized`
- def `union`

Public Attributes

- `asn`
Set of Autonomous System Number resources.
- `v4`
Set of IPv4 resources.
- `v6`

Set of IPv6 resources.

- [valid_until](#)

Expiration date of resources, for setting certificate notAfter field.

3.112.1 Detailed Description

Container to simplify passing around the usual triple of ASN, IPv4, and IPv6 resource sets.

Definition at line 450 of file resource_set.py.

3.112.2 Member Function Documentation

3.112.2.1 def rpki.resource_set.resource_bag.__eq__ (self, other)

Definition at line 510 of file resource_set.py.

3.112.2.2 def rpki.resource_set.resource_bag.__init__ (self, asn = None, v4 = None, v6 = None, valid_until = None)

Definition at line 467 of file resource_set.py.

3.112.2.3 def rpki.resource_set.resource_bag.__ne__ (self, other)

Definition at line 516 of file resource_set.py.

3.112.2.4 def rpki.resource_set.resource_bag.__str__ (self)

Definition at line 537 of file resource_set.py.

3.112.2.5 def rpki.resource_set.resource_bag.empty (self)

Return True iff all resource sets in this bag are empty.

Definition at line 506 of file resource_set.py.

3.112.2.6 def rpki.resource_set.resource_bag.from_rfc3779_tuples (cls, exts)

Build a resource_bag from intermediate form generated by RFC 3779 ASN.1 decoder.

Definition at line 486 of file resource_set.py.

3.112.2.7 def rpkি.resource_set.resource_bag.intersection (self, other)

Compute intersection with another resource_bag.
valid_until attribute (if any) inherits from self.

Definition at line 519 of file resource_set.py.

3.112.2.8 def rpkি.resource_set.resource_bag.oversized (self, other)

True iff self is oversized with respect to other.

Definition at line 473 of file resource_set.py.

3.112.2.9 def rpkি.resource_set.resource_bag.undersized (self, other)

True iff self is undersized with respect to other.

Definition at line 479 of file resource_set.py.

3.112.2.10 def rpkি.resource_set.resource_bag.union (self, other)

Compute union with another resource_bag.
valid_until attribute (if any) inherits from self.

Definition at line 528 of file resource_set.py.

3.112.3 Member Data Documentation**3.112.3.1 rpkি::resource_set.resource_bag::asn**

Set of Autonomous System Number resources.

Definition at line 468 of file resource_set.py.

3.112.3.2 rpkি::resource_set.resource_bag::v4

Set of IPv4 resources.

Definition at line 469 of file resource_set.py.

3.112.3.3 rpkি::resource_set.resource_bag::v6

Set of IPv6 resources.

Definition at line 470 of file resource_set.py.

3.112.3.4 rpki::resource_set.resource_bag::valid_until

Expiration date of resources, for setting certificate notAfter field.

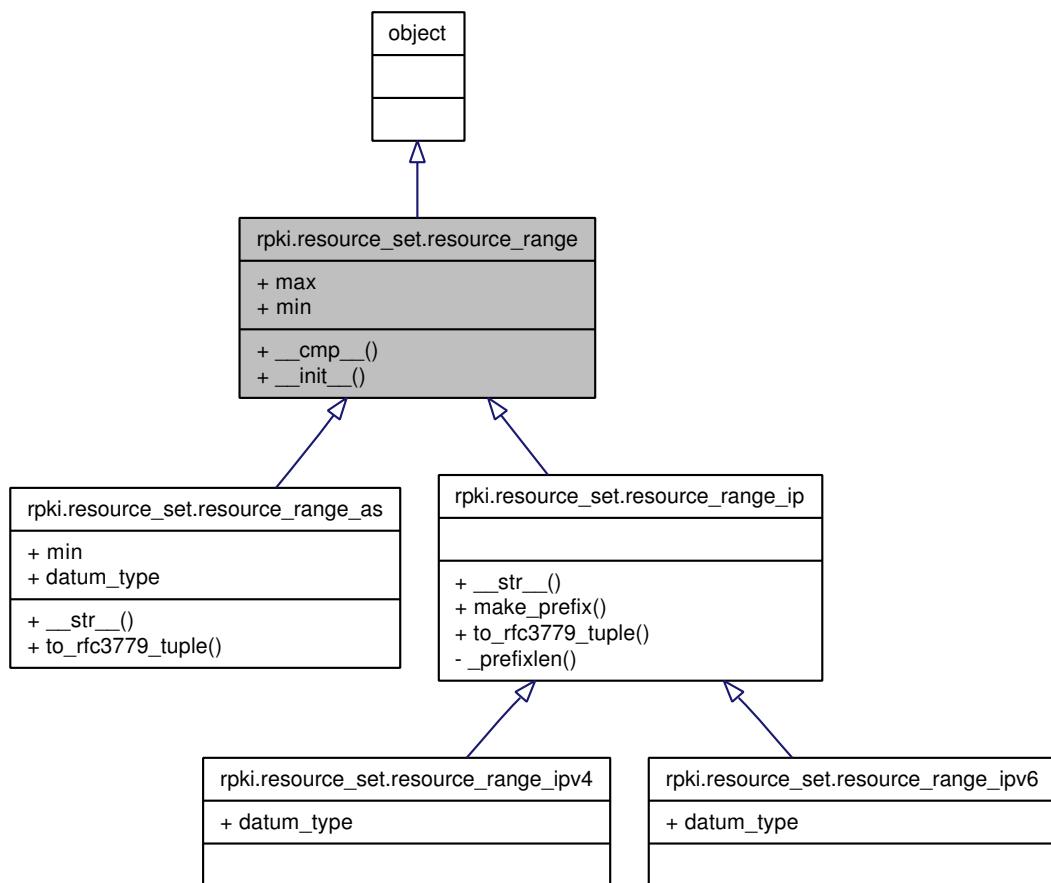
Definition at line 471 of file resource_set.py.

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.113 rpki.resource_set.resource_range Class Reference

Inheritance diagram for rpki.resource_set.resource_range:



Public Member Functions

- def [__cmp__](#)
- def [__init__](#)

Public Attributes

- [max](#)
- [min](#)

3.113.1 Detailed Description

Generic resource range type. Assumes underlying type is some kind of integer.

This is a virtual class. You probably don't want to use this type directly.

Definition at line 35 of file resource_set.py.

3.113.2 Member Function Documentation

3.113.2.1 def rpki.resource_set.resource_range.__cmp__ (*self, other*)

Compare two resource_range objects.

Definition at line 49 of file resource_set.py.

3.113.2.2 def rpki.resource_set.resource_range.__init__ (*self, min, max*)

Initialize and sanity check a resource_range.

Definition at line 43 of file resource_set.py.

3.113.3 Member Data Documentation

3.113.3.1 rpki.resource_set.resource_range.max

Definition at line 47 of file resource_set.py.

3.113.3.2 rpkি.resource_set.resource_range.min

Reimplemented in [rpkি.resource_set.resource_range_as](#).

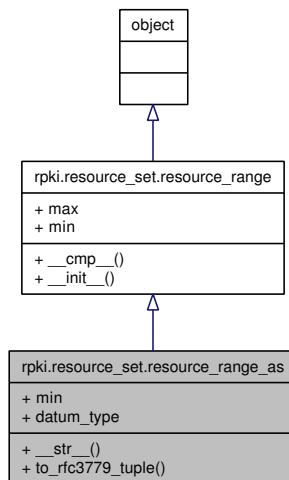
Definition at line 46 of file resource_set.py.

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.114 rpkি.resource_set.resource_range_as Class Reference

Inheritance diagram for rpkি.resource_set.resource_range_as:



Public Member Functions

- def [__str__](#)
- def [to_rfc3779_tuple](#)

Public Attributes

- [min](#)

Static Public Attributes

- [datum_type = long](#)

Type of underlying data (min and max).

3.114.1 Detailed Description

Range of Autonomous System Numbers.

Denotes a single ASN by a range whose min and max values are identical.

Definition at line 58 of file resource_set.py.

3.114.2 Member Function Documentation

3.114.2.1 def rpkি.resource_set.resource_range_as.__str__ (*self*)

Convert a resource_range_as to string format.

Definition at line 69 of file resource_set.py.

3.114.2.2 def rpkি.resource_set.resource_range_as.to_rfc3779_tuple (*self*)

Convert a resource_range_as to tuple format for RFC 3779 ASN.1 encoding.

Definition at line 76 of file resource_set.py.

3.114.3 Member Data Documentation

3.114.3.1 rpkি::resource_set.resource_range_as::datum_type = long [static]

Type of underlying data (min and max).

Definition at line 67 of file resource_set.py.

3.114.3.2 rpkি.resource_set.resource_range_as.min

Reimplemented from [rpkি.resource_set.resource_range](#).

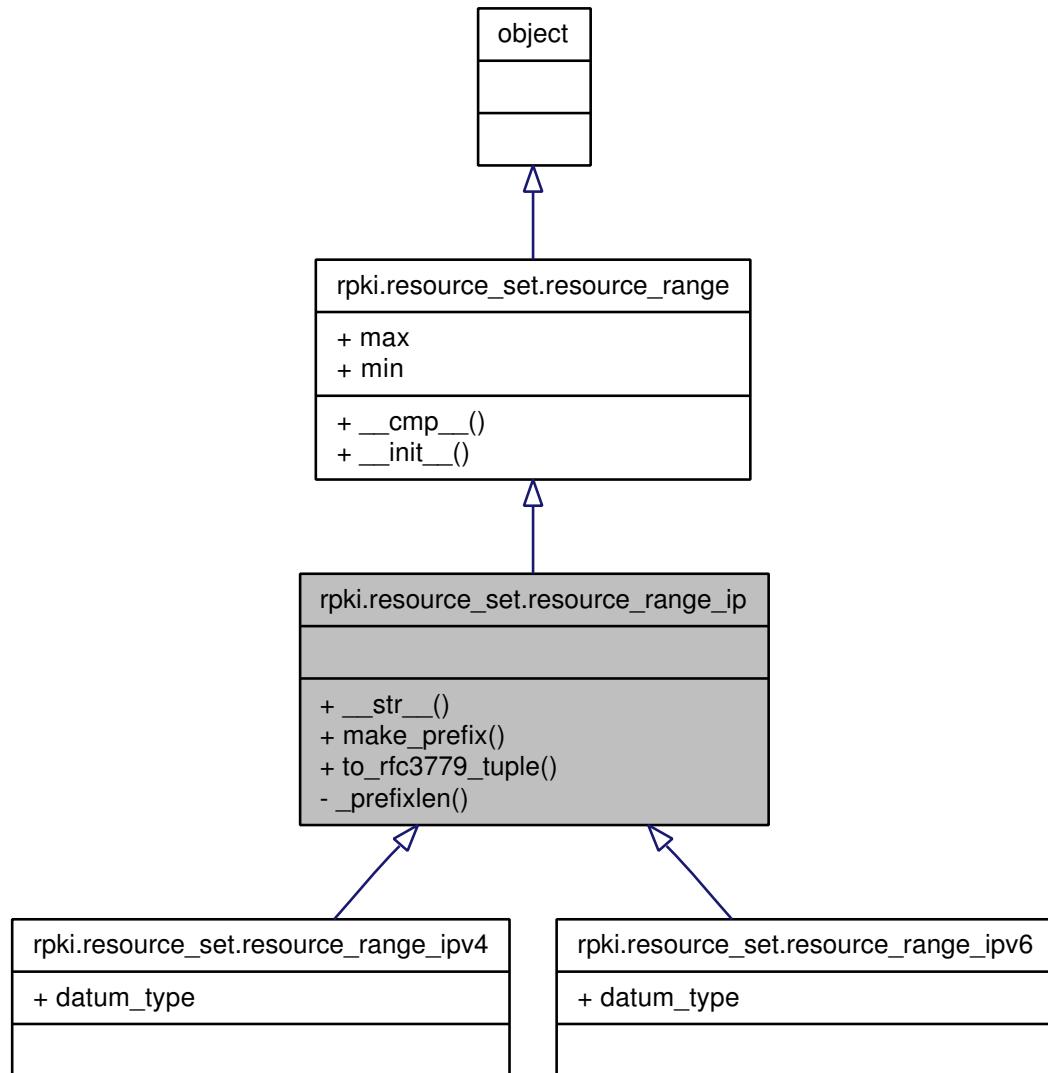
Definition at line 71 of file resource_set.py.

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.115 rpki.resource_set.resource_range_ip Class Reference

Inheritance diagram for rpki.resource_set.resource_range_ip:



Public Member Functions

- def `__str__`
- def `make_prefix`
- def `to_rfc3779_tuple`

Private Member Functions

- def [_prefixlen](#)

3.115.1 Detailed Description

Range of (generic) IP addresses.

Prefixes are converted to ranges on input, and ranges that can be represented as prefixes are written as prefixes on output.

This is a virtual class. You probably don't want to use it directly.

Definition at line 83 of file resource_set.py.

3.115.2 Member Function Documentation

3.115.2.1 def rpki.resource_set.resource_range_ip.__str__ (*self*)

Convert a resource_range_ip to string format.

Definition at line 106 of file resource_set.py.

3.115.2.2 def rpki.resource_set.resource_range_ip._prefixlen (*self*) [private]

Determine whether a resource_range_ip can be expressed as a prefix.

Definition at line 92 of file resource_set.py.

3.115.2.3 def rpki.resource_set.resource_range_ip.make_prefix (*cls*, *address*, *prefixlen*)

Construct a resource range corresponding to a prefix.

Definition at line 124 of file resource_set.py.

3.115.2.4 def rpki.resource_set.resource_range_ip.to_rfc3779_tuple (*self*)

Convert a resource_range_ip to tuple format for RFC 3779 ASN.1 encoding.

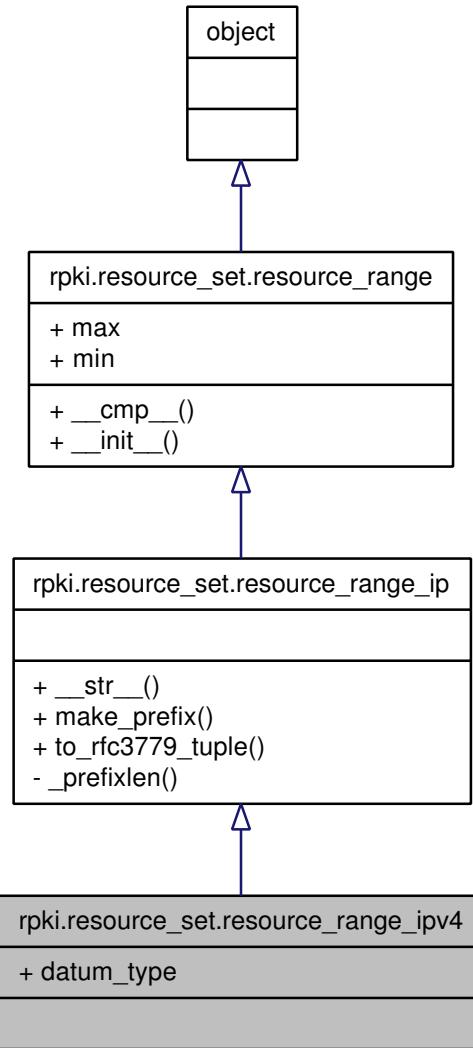
Definition at line 114 of file resource_set.py.

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.116 rpkি.resource_set.resource_range_ipv4 Class Reference

Inheritance diagram for rpkি.resource_set.resource_range_ipv4:



Static Public Attributes

- `datum_type = rpkি.ipaddrs.v4addr`

Type of underlying data (min and max).

3.116.1 Detailed Description

Range of IPv4 addresses.

Definition at line 132 of file resource_set.py.

3.116.2 Member Data Documentation

3.116.2.1 rpkি::resource_set.resource_range_ipv4::datum_type rpkি.ipaddrs.v4addr [static]

=

Type of underlying data (min and max).

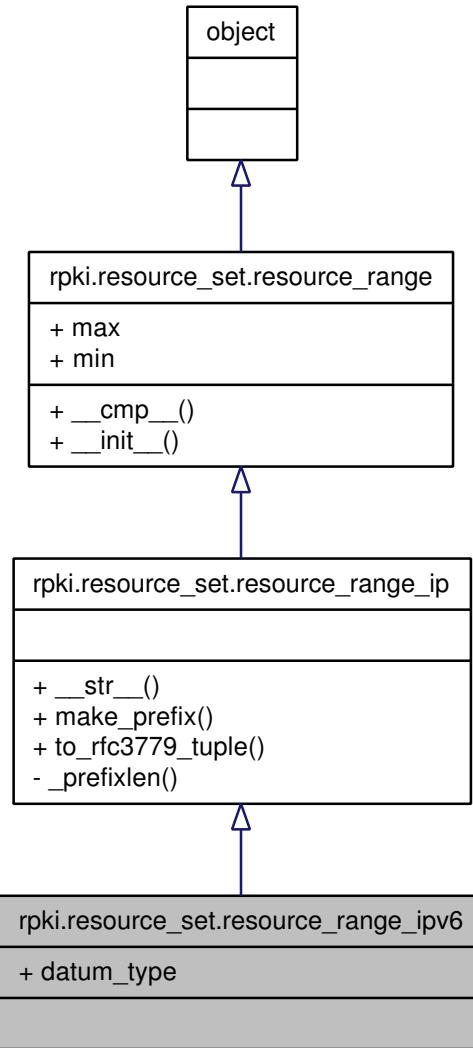
Definition at line 138 of file resource_set.py.

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.117 rpkি.resource_set.resource_range_ipv6 Class Reference

Inheritance diagram for rpkি.resource_set.resource_range_ipv6:



Static Public Attributes

- `datum_type = rpkি.ipaddrs.v6addr`

Type of underlying data (min and max).

3.117.1 Detailed Description

Range of IPv6 addresses.

Definition at line 140 of file resource_set.py.

3.117.2 Member Data Documentation

3.117.2.1 rpkি::resource_set.resource_range_ipv6::datum_type = rpkি.ipaddrs.v6addr [static]

Type of underlying data (min and max).

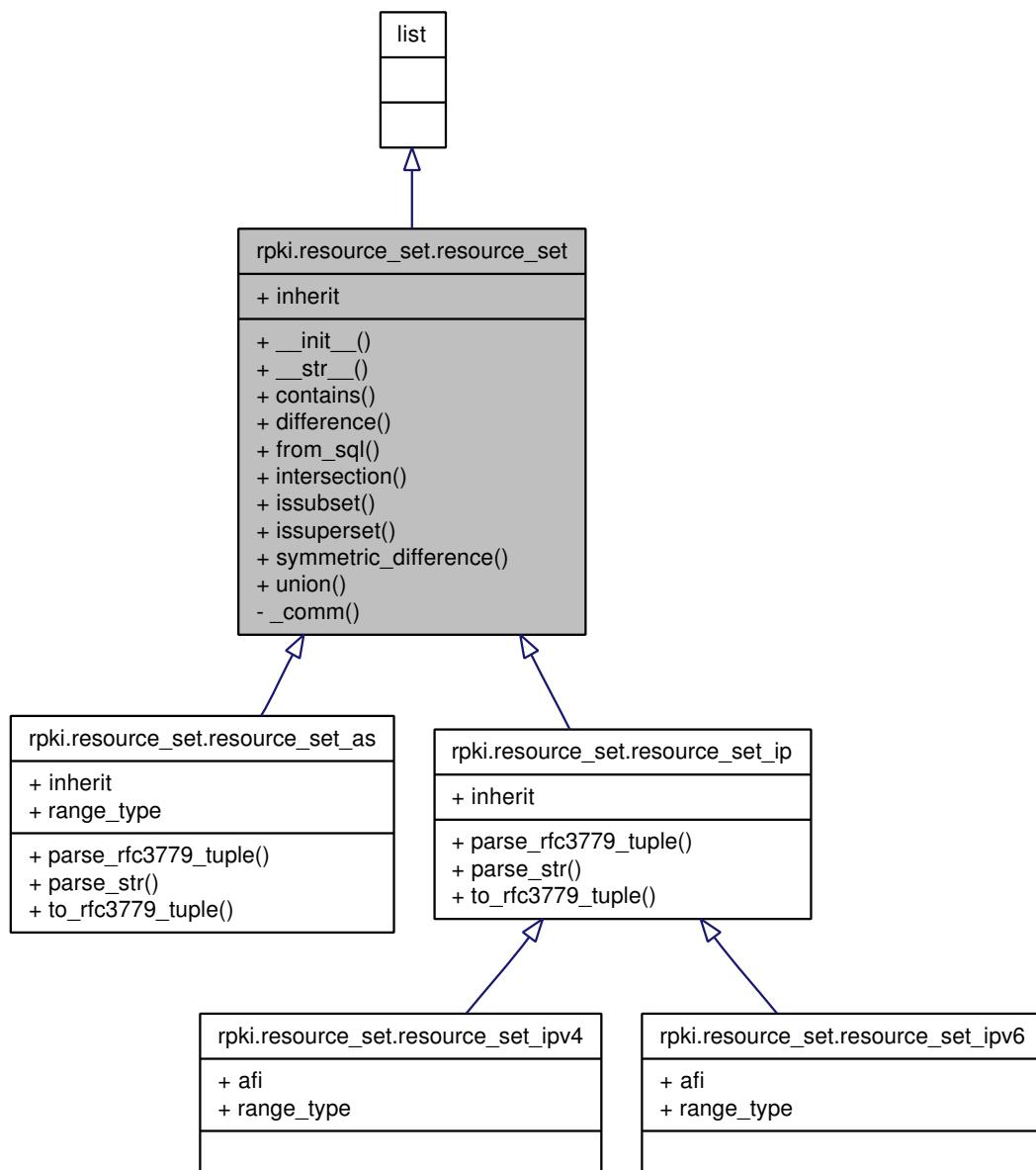
Definition at line 146 of file resource_set.py.

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.118 rpkি.resource_set.resource_set Class Reference

Inheritance diagram for rpkি.resource_set.resource_set:



Public Member Functions

- def [__init__](#)
- def [__str__](#)
- def [contains](#)
- def [difference](#)
- def [from_sql](#)
- def [intersection](#)
- def [issubset](#)
- def [issuperset](#)
- def [symmetric_difference](#)
- def [union](#)

Static Public Attributes

- [inherit](#) = False

Boolean indicating whether this `resource_set` uses RFC 3779 inheritance.

Private Member Functions

- def [_comm](#)

3.118.1 Detailed Description

Generic resource set.

This is a list subclass containing resource ranges.

This is a virtual class. You probably don't want to use it directly.

Definition at line 162 of file `resource_set.py`.

3.118.2 Member Function Documentation

3.118.2.1 def rpkি.resource_set.resource_set.__init__ (*self*, *ini* = None)

Initialize a `resource_set`.

Definition at line 175 of file `resource_set.py`.

3.118.2.2 def rpki.resource_set.resource_set.__str__ (self)

Convert a resource_set to string format.

Definition at line 199 of file resource_set.py.

3.118.2.3 def rpki.resource_set.resource_set._comm (self, other) [private]

Like comm(1), sort of.

Returns a tuple of three resource sets: resources only in self, resources only in other, and resources in both. Used (not very efficiently) as the basis for most set operations on resource sets.

Definition at line 206 of file resource_set.py.

3.118.2.4 def rpki.resource_set.resource_set.contains (self, item)

Set membership test for resource sets.

Definition at line 274 of file resource_set.py.

3.118.2.5 def rpki.resource_set.resource_set.difference (self, other)

Set difference for resource sets.

Definition at line 265 of file resource_set.py.

3.118.2.6 def rpki.resource_set.resource_set.from_sql (cls, sql, query, args = None)

Create resource set from an SQL query.

sql is an object that supports execute() and fetchall() methods like a DB API 2.0 cursor object.

query is an SQL query that returns a sequence of (min, max) pairs.

Definition at line 298 of file resource_set.py.

3.118.2.7 def rpkি.resource_set.resource_set.intersection (self, other)

Set intersection for resource sets.

Definition at line 261 of file resource_set.py.

3.118.2.8 def rpkি.resource_set.resource_set.issubset (self, other)

Test whether self is a subset (possibly improper) of other.

Definition at line 286 of file resource_set.py.

3.118.2.9 def rpkি.resource_set.resource_set.issuperset (self, other)

Test whether self is a superset (possibly improper) of other.

Definition at line 293 of file resource_set.py.

3.118.2.10 def rpkি.resource_set.resource_set.symmetric_difference (self, other)

Set symmetric difference (XOR) for resource sets.

Definition at line 269 of file resource_set.py.

3.118.2.11 def rpkি.resource_set.resource_set.union (self, other)

Set union for resource sets.

Definition at line 238 of file resource_set.py.

3.118.3 Member Data Documentation**3.118.3.1 rpkি::resource_set.resource_set::inherit = False [static]**

Boolean indicating whether this [resource_set](#) uses RFC 3779 inheritance.

Reimplemented in [rpkি.resource_set.resource_set_as](#), and [rpkি.resource_set.resource_set_ip](#).

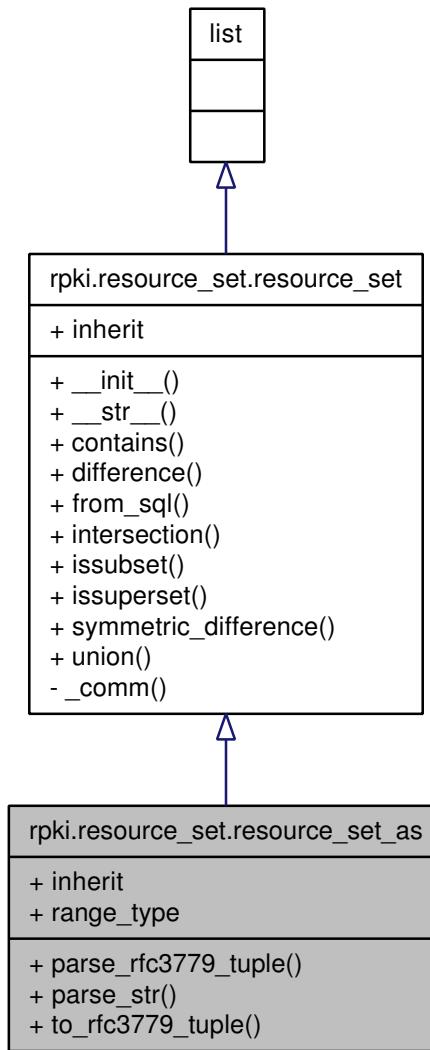
Definition at line 173 of file resource_set.py.

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.119 rpkি.resource_set.resource_set_as Class Reference

Inheritance diagram for rpkি.resource_set.resource_set_as:



Public Member Functions

- def [parse_rfc3779_tuple](#)
- def [parse_str](#)
- def [to_rfc3779_tuple](#)

Public Attributes

- `inherit`

Boolean indicating whether this `resource_set` uses RFC 3779 inheritance.

Static Public Attributes

- `range_type = resource_range_as`

Type of range underlying this type of `resource_set`.

3.119.1 Detailed Description

ASN resource set.

Definition at line 312 of file `resource_set.py`.

3.119.2 Member Function Documentation

3.119.2.1 def rpki.resource_set.resource_set_as.parse_rfc3779_tuple (*self, x*)

Parse ASN resource from tuple format generated by RFC 3779 ASN.1 decoder.

Definition at line 328 of file `resource_set.py`.

3.119.2.2 def rpki.resource_set.resource_set_as.parse_str (*self, x*)

Parse ASN resource sets from text (eg, XML attributes).

Definition at line 320 of file `resource_set.py`.

3.119.2.3 def rpki.resource_set.resource_set_as.to_rfc3779_tuple (*self*)

Convert ASN resource set into tuple format used for RFC 3779 ASN.1 encoding.

Definition at line 343 of file `resource_set.py`.

3.119.3 Member Data Documentation

3.119.3.1 rpkি.resource_set.resource_set_as.inherit

Boolean indicating whether this [resource_set](#) uses RFC 3779 inheritance.

Reimplemented from [rpkি.resource_set.resource_set](#).

Definition at line 341 of file [resource_set.py](#).

3.119.3.2 rpkি::resource_set.resource_set_as::range_type = resource_range_as [static]

Type of range underlying this type of [resource_set](#).

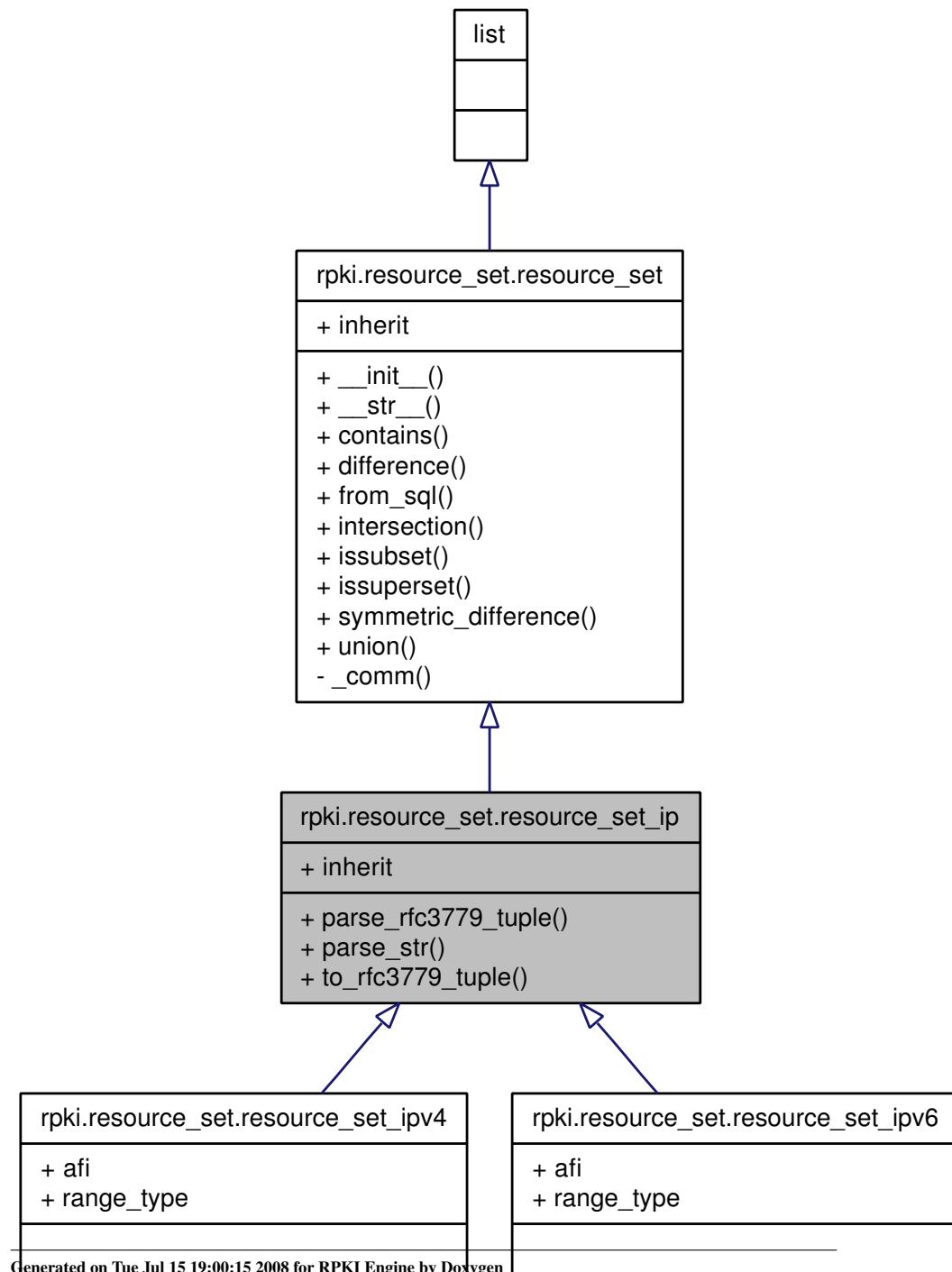
Definition at line 318 of file [resource_set.py](#).

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.120 rpkি.resource_set.resource_set_ip Class Reference

Inheritance diagram for rpkি.resource_set.resource_set_ip:



Public Member Functions

- def [parse_rfc3779_tuple](#)
- def [parse_str](#)
- def [to_rfc3779_tuple](#)

Public Attributes

- [inherit](#)

Boolean indicating whether this [resource_set](#) uses RFC 3779 inheritance.

3.120.1 Detailed Description

(Generic) IP address resource set.

This is a virtual class. You probably don't want to use it directly.

Definition at line 352 of file [resource_set.py](#).

3.120.2 Member Function Documentation

3.120.2.1 def rpki.resource_set.resource_set_ip.parse_rfc3779_tuple (*self*, *x*)

Parse IP address resource sets from tuple format generated by RFC 3779 ASN.1 decoder.

Definition at line 369 of file [resource_set.py](#).

3.120.2.2 def rpki.resource_set.resource_set_ip.parse_str (*self*, *x*)

Parse IP address resource sets from text (eg, XML attributes).

Definition at line 359 of file [resource_set.py](#).

3.120.2.3 def rpki.resource_set.resource_set_ip.to_rfc3779_tuple (*self*)

Convert IP resource set into tuple format used by RFC 3779 ASN.1 encoder.

Definition at line 384 of file [resource_set.py](#).

3.120.3 Member Data Documentation

3.120.3.1 rpki.resource_set.resource_set_ip.inherit

Boolean indicating whether this [resource_set](#) uses RFC 3779 inheritance.

Reimplemented from [rpki.resource_set.resource_set](#).

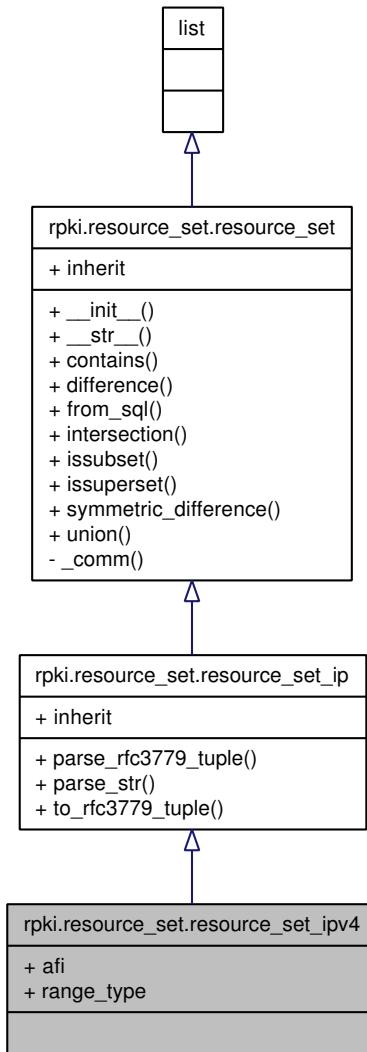
Definition at line 382 of file [resource_set.py](#).

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.121 rpkি.resource_set.resource_set_ipv4 Class Reference

Inheritance diagram for rpkি.resource_set.resource_set_ipv4:



Static Public Attributes

- string `afi` = "\x00\x01"
Address Family Identifier value for IPv4.
- `range_type` = `resource_range_ipv4`

Type of range underlying this type of [resource_set](#).

3.121.1 Detailed Description

IPv4 address resource set.

Definition at line 393 of file [resource_set.py](#).

3.121.2 Member Data Documentation

3.121.2.1 rpkি::resource_set.resource_set_ipv4::afi = "\x00\x01" [static]

Address Family Identifier value for IPv4.

Definition at line 404 of file [resource_set.py](#).

3.121.2.2 rpkি::resource_set.resource_set_ipv4::range_type = resource_range_ipv4 [static]

Type of range underlying this type of [resource_set](#).

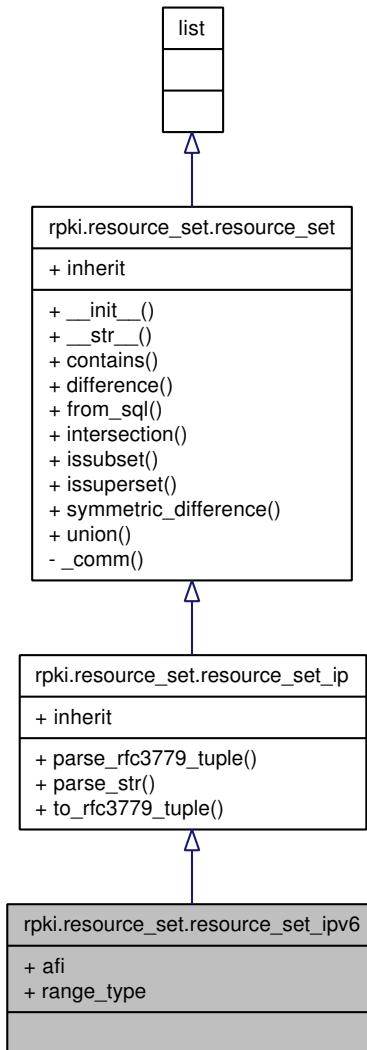
Definition at line 399 of file [resource_set.py](#).

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.122 rpkি.resource_set.resource_set_ipv6 Class Reference

Inheritance diagram for rpkি.resource_set.resource_set_ipv6:



Static Public Attributes

- string `afi` = "\x00\x02"
Address Family Identifier value for IPv6.
- `range_type` = `resource_range_ipv6`

Type of range underlying this type of `resource_set`.

3.122.1 Detailed Description

IPv6 address resource set.

Definition at line 406 of file `resource_set.py`.

3.122.2 Member Data Documentation

3.122.2.1 `rpkি::resource_set.resource_set_ipv6::afi = "\x00\x02"` [static]

Address Family Identifier value for IPv6.

Definition at line 417 of file `resource_set.py`.

3.122.2.2 `rpkি::resource_set.resource_set_ipv6::range_type = resource_range_ipv6` [static]

Type of range underlying this type of `resource_set`.

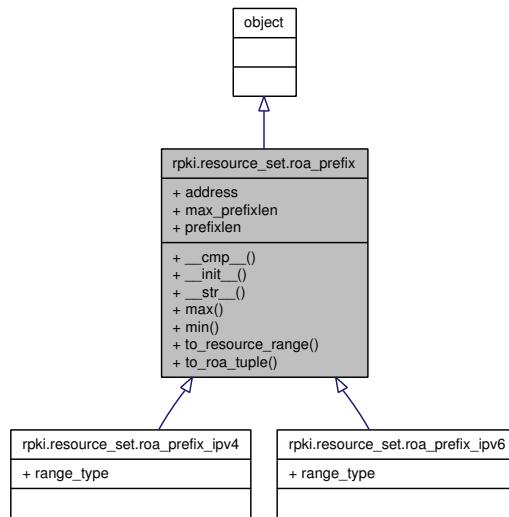
Definition at line 412 of file `resource_set.py`.

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.123 rpkি.resource_set.roa_prefix Class Reference

Inheritance diagram for rpkি.resource_set.roa_prefix:



Public Member Functions

- def [__cmp__](#)
- def [__init__](#)
- def [__str__](#)
- def [max](#)
- def [min](#)
- def [to_resource_range](#)
- def [to_roa_tuple](#)

Public Attributes

- [address](#)
Address portion of prefix.
- [max_prefixlen](#)
Maxmimum prefix length.
- [prefixlen](#)
(Minimum) prefix length.

3.123.1 Detailed Description

ROA prefix. This is similar to the resource_range_ip class, but differs in that it only represents prefixes, never ranges, and includes the maximum prefix length as an additional value.

This is a virtual class, you probably don't want to use it directly.

Definition at line 559 of file resource_set.py.

3.123.2 Member Function Documentation

3.123.2.1 def rpki.resource_set.roa_prefix.__cmp__ (*self, other*)

Compare two ROA prefix objects. Comparision is based on address, prefixlen, and max_prefixlen, in that order.

Definition at line 588 of file resource_set.py.

3.123.2.2 def rpki.resource_set.roa_prefix.__init__ (*self, address, prefixlen, max_prefixlen = None*)

Initialize a ROA prefix. max_prefixlen is optional and defaults to prefixlen. max_prefixlen must not be smaller than prefixlen.

Definition at line 576 of file resource_set.py.

3.123.2.3 def rpki.resource_set.roa_prefix.__str__ (*self*)

Convert a ROA prefix to string format.

Definition at line 600 of file resource_set.py.

3.123.2.4 def rpki.resource_set.roa_prefix.max (*self*)

Return highest address covered by prefix.

Definition at line 618 of file resource_set.py.

3.123.2.5 def rpki.resource_set.roa_prefix.min (*self*)

Return lowest address covered by prefix.

Definition at line 614 of file resource_set.py.

3.123.2.6 def rpki.resource_set.roa_prefix.to_resource_range (*self*)

Convert this ROA prefix to the equivalent resource_range_ip object. This is an irreversible transformation because it loses the max_prefixlen attribute, nothing we can do about that.

Definition at line 607 of file resource_set.py.

3.123.2.7 def rpki.resource_set.roa_prefix.to_roa_tuple (*self*)

Convert a resource_range_ip to tuple format for ROA ASN.1 encoding.

Definition at line 623 of file resource_set.py.

3.123.3 Member Data Documentation**3.123.3.1 rpki::resource_set.roa_prefix::address**

Address portion of prefix.

Definition at line 584 of file resource_set.py.

3.123.3.2 rpki::resource_set.roa_prefix::max_prefixlen

Maxmimum prefix length.

Definition at line 586 of file resource_set.py.

3.123.3.3 rpki::resource_set.roa_prefix::prefixlen

(Minimum) prefix length.

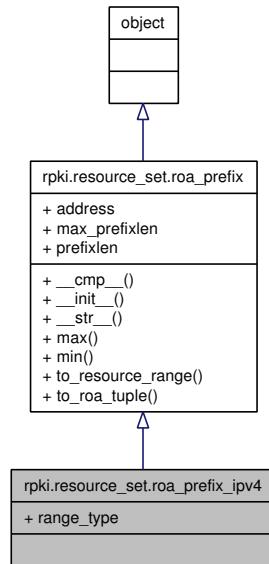
Definition at line 585 of file resource_set.py.

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.124 rpkি.resource_set.roa_prefix_ipv4 Class Reference

Inheritance diagram for rpkি.resource_set.roa_prefix_ipv4:



Static Public Attributes

- `range_type = resource_range_ipv4`
Type of corresponding `resource_range_ip`.

3.124.1 Detailed Description

IPv4 ROA prefix.

Definition at line 628 of file `resource_set.py`.

3.124.2 Member Data Documentation

3.124.2.1 rpkি::resource_set.roa_prefix_ipv4::range_type = resource_range_ipv4 [static]

Type of corresponding `resource_range_ip`.

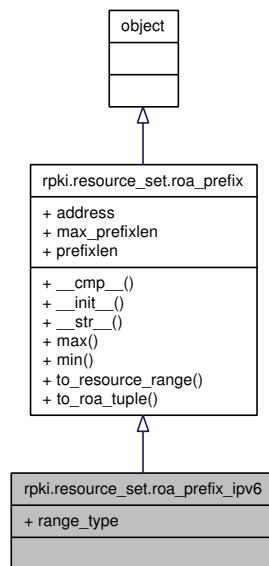
Definition at line 634 of file `resource_set.py`.

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.125 rpki.resource_set.roa_prefix_ipv6 Class Reference

Inheritance diagram for rpki.resource_set.roa_prefix_ipv6:



Static Public Attributes

- `range_type = resource_range_ipv6`
Type of corresponding [resource_range_ip](#).

3.125.1 Detailed Description

IPv6 ROA prefix.

Definition at line 636 of file [resource_set.py](#).

3.125.2 Member Data Documentation

3.125.2.1 `rpkি::resource_set.roa_prefix_ipv6::range_type = resource_range_ipv6 [static]`

Type of corresponding [resource_range_ip](#).

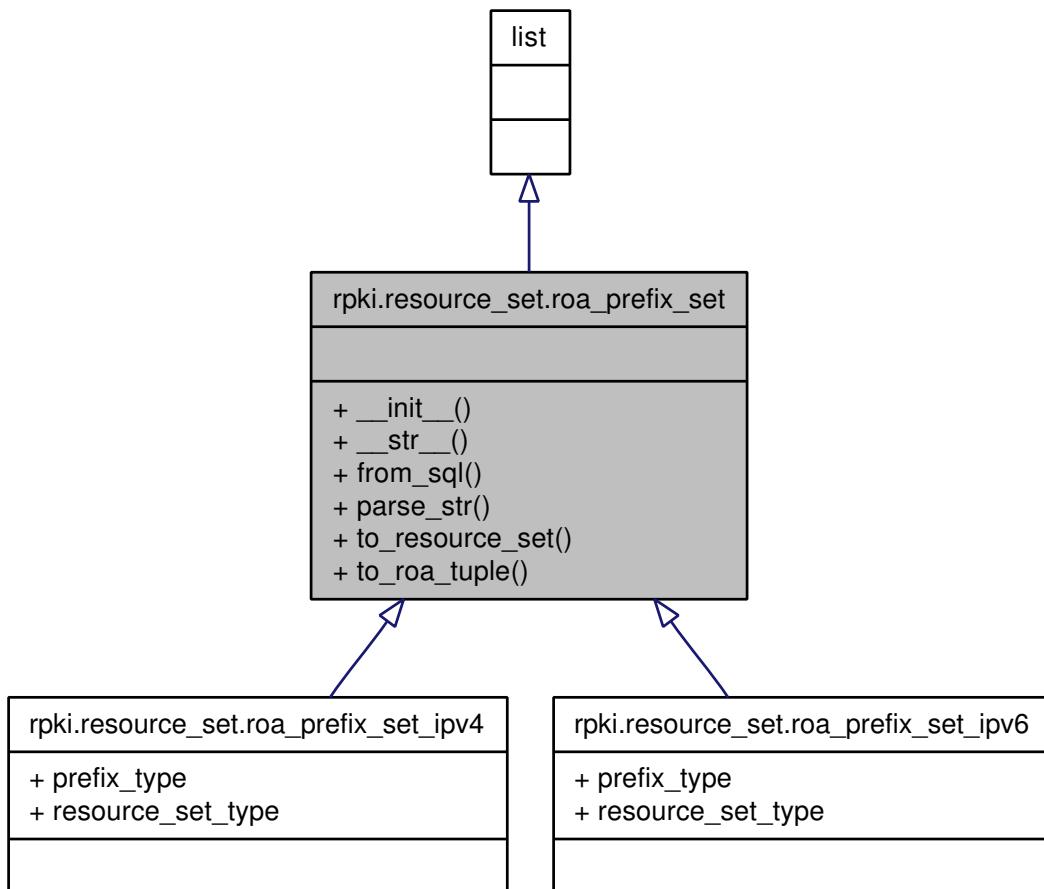
Definition at line 642 of file `resource_set.py`.

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.126 rpkি.resource_set.roa_prefix_set Class Reference

Inheritance diagram for `rpkি.resource_set.roa_prefix_set`:



Public Member Functions

- def [__init__](#)
- def [__str__](#)
- def [from_sql](#)
- def [parse_str](#)
- def [to_resource_set](#)
- def [to_roa_tuple](#)

3.126.1 Detailed Description

Set of ROA prefixes, analogous to the `resource_set_ip` class.

Definition at line 644 of file `resource_set.py`.

3.126.2 Member Function Documentation

3.126.2.1 def rpki.resource_set.roa_prefix_set.__init__ (*self*, *ini* = None)

Initialize a ROA prefix set.

Definition at line 647 of file `resource_set.py`.

3.126.2.2 def rpki.resource_set.roa_prefix_set.__str__ (*self*)

Convert a ROA prefix set to string format.

Definition at line 660 of file `resource_set.py`.

3.126.2.3 def rpki.resource_set.roa_prefix_set.from_sql (*cls*, *sql*, *query*, *args* = None)

Create ROA prefix set from an SQL query.

sql is an object that supports `execute()` and `fetchall()` methods like a DB API 2.0 cursor object.

query is an SQL query that returns a sequence of (address, prefixlen, max_prefixlen) triples.

Definition at line 681 of file `resource_set.py`.

3.126.2.4 def rpki.resource_set.roa_prefix_set.parse_str (*self*, *x*)

Parse ROA prefix from text (eg, an XML attribute).

Definition at line 664 of file resource_set.py.

3.126.2.5 def rpki.resource_set.roa_prefix_set.to_resource_set (*self*)

Convert a ROA prefix set to a resource set. This is an irreversible transformation.

Definition at line 674 of file resource_set.py.

3.126.2.6 def rpki.resource_set.roa_prefix_set.to_roa_tuple (*self*)

Convert ROA prefix set into tuple format used by ROA ASN.1 encoder.
This is a variation on the format used in RFC 3779.

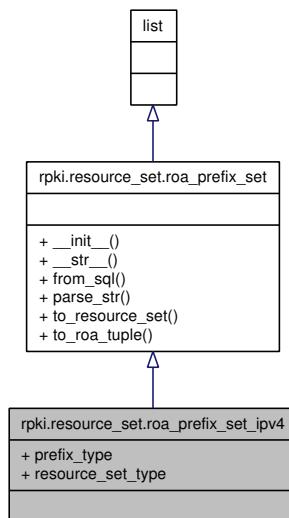
Definition at line 695 of file resource_set.py.

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.127 rpki.resource_set.roa_prefix_set_ipv4 Class Reference

Inheritance diagram for rpki.resource_set.roa_prefix_set_ipv4:



Static Public Attributes

- [prefix_type = roa_prefix_ipv4](#)
Type of underlying roa_prefix.
- [resource_set_type = resource_set_ipv4](#)
Type of corresponding resource_set_ip class.

3.127.1 Detailed Description

Set of IPv4 ROA prefixes.

Definition at line 703 of file resource_set.py.

3.127.2 Member Data Documentation

3.127.2.1 rpkি::resource_set.roa_prefix_set_ipv4::prefix_type = roa_prefix_ipv4 [static]

Type of underlying roa_prefix.

Definition at line 709 of file resource_set.py.

3.127.2.2 rpkি::resource_set.roa_prefix_set_ipv4::resource_set_type = resource_set_ipv4 [static]

Type of corresponding resource_set_ip class.

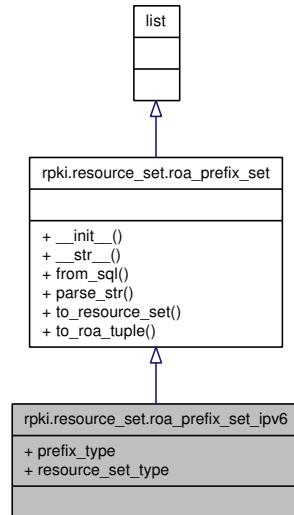
Definition at line 714 of file resource_set.py.

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.128 rpkি.resource_set.roa_prefix_set_ipv6 Class Reference

Inheritance diagram for rpkি.resource_set.roa_prefix_set_ipv6:



Static Public Attributes

- `prefix_type = roa_prefix_ipv6`
Type of underlying roa_prefix.
- `resource_set_type = resource_set_ipv6`
Type of corresponding resource_set_ip class.

3.128.1 Detailed Description

Set of IPv6 ROA prefixes.

Definition at line 716 of file resource_set.py.

3.128.2 Member Data Documentation

3.128.2.1 rpkি::resource_set.roa_prefix_set_ipv6::prefix_type = roa_prefix_ipv6 [static]

Type of underlying roa_prefix.

Definition at line 722 of file resource_set.py.

**3.128.2.2 rpki::resource_set.roa_prefix_set_ipv6::resource_set_type
resource_set_ipv6 [static]** =

Type of corresponding [resource_set_ip](#) class.

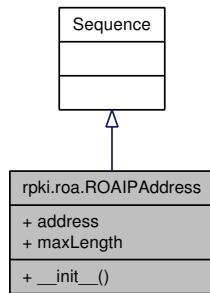
Definition at line 727 of file [resource_set.py](#).

The documentation for this class was generated from the following file:

- [resource_set.py \(1984\)](#)

3.129 rpki.roa.ROAIPAddress Class Reference

Inheritance diagram for rpki.roa.ROAIPAddress:



Public Member Functions

- def [__init__](#)

Public Attributes

- `address`
- `maxLength`

3.129.1 Detailed Description

Definition at line 46 of file [roa.py](#).

3.129.2 Member Function Documentation

3.129.2.1 def rpki.roa.ROAIPAddress.__init__ (*self*, *optional* = 0, *default* = '')

Definition at line 47 of file roa.py.

3.129.3 Member Data Documentation

3.129.3.1 rpkি.roa.ROAIPAddress.address

Definition at line 48 of file roa.py.

3.129.3.2 rpkি.roa.ROAIPAddress.maxLength

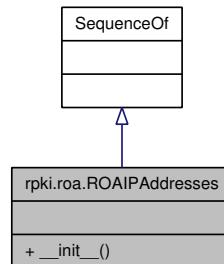
Definition at line 49 of file roa.py.

The documentation for this class was generated from the following file:

- [roa.py \(1975\)](#)

3.130 rpkি.roа.ROAIPAddresses Class Reference

Inheritance diagram for rpkি.roа.ROAIPAddresses:



Public Member Functions

- def [__init__](#)

3.130.1 Detailed Description

Definition at line 53 of file roa.py.

3.130.2 Member Function Documentation

3.130.2.1 def rpkি.roа.ROAIPAddresses.__init__ (*self*, *optional* = 0, *default* = '')

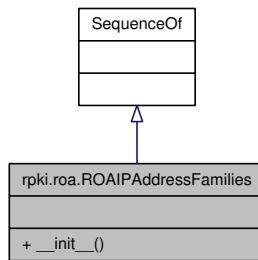
Definition at line 54 of file roa.py.

The documentation for this class was generated from the following file:

- [roa.py \(1975\)](#)

3.131 rpki.roa.ROAIPAddressFamilies Class Reference

Inheritance diagram for rpki.roa.ROAIPAddressFamilies:



Public Member Functions

- def [__init__](#)

3.131.1 Detailed Description

Definition at line 64 of file roa.py.

3.131.2 Member Function Documentation

3.131.2.1 def rpki.roa.ROAIPAddressFamilies.__init__ (*self*, *optional* = 0, *default* = '')

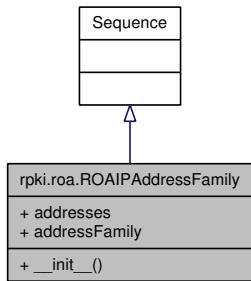
Definition at line 65 of file roa.py.

The documentation for this class was generated from the following file:

- [roa.py \(1975\)](#)

3.132 rpki.roa.ROAIPAddressFamily Class Reference

Inheritance diagram for rpki.roa.ROAIPAddressFamily:



Public Member Functions

- def [__init__](#)

Public Attributes

- [addresses](#)
- [addressFamily](#)

3.132.1 Detailed Description

Definition at line 57 of file roa.py.

3.132.2 Member Function Documentation

3.132.2.1 def rpki.roa.ROAIPAddressFamily.__init__(self, optional=0, default="")

Definition at line 58 of file roa.py.

3.132.3 Member Data Documentation

3.132.3.1 rpki.roa.ROAIPAddressFamily.addresses

Definition at line 60 of file roa.py.

3.132.3.2 rpki.roa.ROAIPAddressFamily.addressFamily

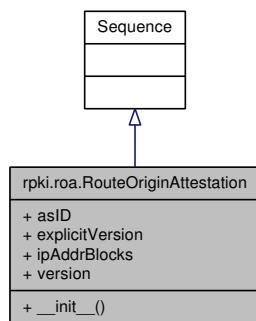
Definition at line 59 of file roa.py.

The documentation for this class was generated from the following file:

- [roa.py \(1975\)](#)

3.133 rpki.roa.RouteOriginAttestation Class Reference

Inheritance diagram for rpki.roa.RouteOriginAttestation:



Public Member Functions

- def [__init__](#)

Public Attributes

- [asID](#)
- [explicitVersion](#)
- [ipAddrBlocks](#)
- [version](#)

3.133.1 Detailed Description

Definition at line 68 of file roa.py.

3.133.2 Member Function Documentation

3.133.2.1 def rpki.roa.RouteOriginAttestation.__init__ (*self*, *optional* = 0, *default* = '')

Definition at line 69 of file roa.py.

3.133.3 Member Data Documentation

3.133.3.1 rpki.roa.RouteOriginAttestation.asID

Definition at line 72 of file roa.py.

3.133.3.2 rpki.roa.RouteOriginAttestation.explicitVersion

Definition at line 71 of file roa.py.

3.133.3.3 rpki.roa.RouteOriginAttestation.ipAddrBlocks

Definition at line 73 of file roa.py.

3.133.3.4 rpki.roa.RouteOriginAttestation.version

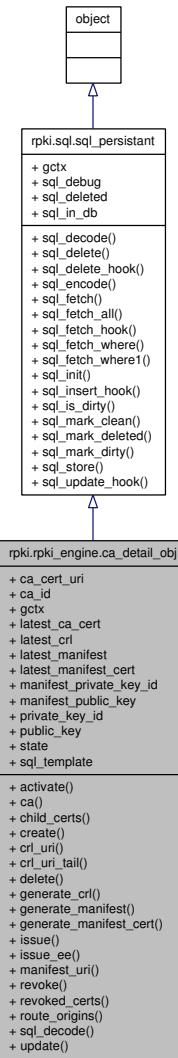
Definition at line 70 of file roa.py.

The documentation for this class was generated from the following file:

- [roa.py \(1975\)](#)

3.134 rpkirpki_engine.ca_detail_obj Class Reference

Inheritance diagram for rpkirpki_engine.ca_detail_obj:



Public Member Functions

- def [activate](#)
- def [ca](#)
- def [child_certs](#)
- def [create](#)

- def [crl_uri](#)
- def [crl_uri_tail](#)
- def [delete](#)
- def [generate_crl](#)
- def [generate_manifest](#)
- def [generate_manifest_cert](#)
- def [issue](#)
- def [issue_ee](#)
- def [manifest_uri](#)
- def [revoke](#)
- def [revoked_certs](#)
- def [route_origins](#)
- def [sql_decode](#)
- def [update](#)

Public Attributes

- [ca_cert_uri](#)
- [ca_id](#)
- [gctx](#)
- [latest_ca_cert](#)
- [latest_crl](#)
- [latest_manifest](#)
- [latest_manifest_cert](#)
- [manifest_private_key_id](#)
- [manifest_public_key](#)
- [private_key_id](#)
- [public_key](#)
- [state](#)

Static Public Attributes

- tuple [sql_template](#)

3.134.1 Detailed Description

Internal CA detail object.

Definition at line 340 of file rpki_engine.py.

3.134.2 Member Function Documentation

3.134.2.1 def rpki.rpki_engine.ca_detail_obj.activate (*self*, *ca*, *cert*, *uri*, *predecessor* = None)

Activate this ca_detail.

Definition at line 394 of file rpki_engine.py.

3.134.2.2 def rpki.rpki_engine.ca_detail_obj.ca (*self*)

Fetch CA object to which this ca_detail links.

Definition at line 366 of file rpki_engine.py.

3.134.2.3 def rpki.rpki_engine.ca_detail_obj.child_certs (*self*, *child* = None, *ski* = None, *unique* = False)

Fetch all child_cert objects that link to this ca_detail.

Definition at line 370 of file rpki_engine.py.

3.134.2.4 def rpki.rpki_engine.ca_detail_obj.create (*cls*, *ca*)

Create a new ca_detail object for a specified CA.

Definition at line 499 of file rpki_engine.py.

3.134.2.5 def rpki.rpki_engine.ca_detail_obj.crl_uri (*self*, *ca*)

Return publication URI for this ca_detail's CRL.

Definition at line 382 of file rpki_engine.py.

3.134.2.6 def rpki.rpki_engine.ca_detail_obj.crl_uri_tail (*self*)

Return tail (filename portion) of publication URI for this ca_detail's CRL.

Definition at line 386 of file rpki_engine.py.

3.134.2.7 def rpki.rpki_engine.ca_detail_obj.delete (self, ca, repository)

Delete this ca_detail and all of the certs it issued.

Definition at line 413 of file rpki_engine.py.

3.134.2.8 def rpki.rpki_engine.ca_detail_obj.generate_crl (self, nextUpdate = None)

Generate a new CRL for this ca_detail. At the moment this is unconditional, that is, it is up to the caller to decide whether a new CRL is needed.

Definition at line 581 of file rpki_engine.py.

3.134.2.9 def rpki.rpki_engine.ca_detail_obj.generate_manifest (self, nextUpdate = None)

Generate a new manifest for this ca_detail.

Definition at line 614 of file rpki_engine.py.

3.134.2.10 def rpki.rpki_engine.ca_detail_obj.generate_manifest_cert (self, ca)

Generate a new manifest certificate for this ca_detail.

Definition at line 530 of file rpki_engine.py.

3.134.2.11 def rpki.rpki_engine.ca_detail_obj.issue (self, ca, child, subject_key, sia, resources, child_cert = None)

Issue a new certificate to a child. Optional child_cert argument specifies an existing child_cert object to update in place; if not specified, we create a new one. Returns the child_cert object containing the newly issued cert.

Definition at line 540 of file rpki_engine.py.

3.134.2.12 def rpki.rpki_engine.ca_detail_obj.issue_ee (self, ca, resources, subject_key, sia = None)

Issue a new EE certificate.

Definition at line 515 of file rpki_engine.py.

3.134.2.13 def rpki.rpki_engine.ca_detail_obj.manifest_uri (*self, ca*)

Return publication URI for this ca_detail's manifest.

Definition at line 390 of file rpki_engine.py.

3.134.2.14 def rpki.rpki_engine.ca_detail_obj.revoke (*self*)

Request revocation of all certificates whose SKI matches the key for this ca_detail.

Tasks:

- Request revocation of old keypair by parent.
- Revoke all child certs issued by the old keypair.
- Generate a final CRL, signed with the old keypair, listing all the revoked certs, with a next CRL time after the last cert or CRL signed by the old keypair will have expired.
- Destroy old keypair (and manifest keypair).
- Leave final CRL in place until its next CRL time has passed.

Definition at line 427 of file rpki_engine.py.

3.134.2.15 def rpki.rpki_engine.ca_detail_obj.revoked_certs (*self*)

Fetch all revoked_cert objects that link to this ca_detail.

Definition at line 374 of file rpki_engine.py.

3.134.2.16 def rpki.rpki_engine.ca_detail_obj.route_origins (*self*)

Fetch all route_origin objects that link to this ca_detail.

Definition at line 378 of file rpki_engine.py.

3.134.2.17 def rpki.rpki_engine.ca_detail_obj.sql_decode (*self, vals*)

Extra assertions for SQL decode of a ca_detail_obj.

Reimplemented from [rpki.sql.sql_persistent](#).

Definition at line 358 of file rpki_engine.py.

3.134.2.18 def rpki.rpki_engine.ca_detail_obj.update (self, parent, ca, rc, sia_uri_changed, old_resources)

Need to get a new certificate for this ca_detail and perhaps frob children of this ca_detail.

Definition at line 479 of file rpki_engine.py.

3.134.3 Member Data Documentation**3.134.3.1 rpki.rpki_engine.ca_detail_obj.ca_cert_uri**

Definition at line 398 of file rpki_engine.py.

3.134.3.2 rpki.rpki_engine.ca_detail_obj.ca_id

Definition at line 503 of file rpki_engine.py.

3.134.3.3 rpki.rpki_engine.ca_detail_obj.gctx

Reimplemented from [rpki.sql.sql_persistent](#).

Definition at line 502 of file rpki_engine.py.

3.134.3.4 rpki.rpki_engine.ca_detail_obj.latest_ca_cert

Definition at line 397 of file rpki_engine.py.

3.134.3.5 rpki.rpki_engine.ca_detail_obj.latest_crl

Definition at line 604 of file rpki_engine.py.

3.134.3.6 rpki.rpki_engine.ca_detail_obj.latest_manifest

Definition at line 633 of file rpki_engine.py.

3.134.3.7 rpki.rpki_engine.ca_detail_obj.latest_manifest_cert

Definition at line 475 of file rpki_engine.py.

3.134.3.8 rpki.rpki_engine.ca_detail_obj.manifest_private_key_id

Definition at line 473 of file rpki_engine.py.

3.134.3.9 rpki.rpki_engine.ca_detail_obj.manifest_public_key

Definition at line 474 of file rpki_engine.py.

3.134.3.10 rpki.rpki_engine.ca_detail_obj.private_key_id

Definition at line 472 of file rpki_engine.py.

3.134.3.11 rpki.rpki_engine.ca_detail_obj.public_key

Definition at line 507 of file rpki_engine.py.

3.134.3.12 tuple rpki.rpki_engine.ca_detail_obj.sql_template [static]

Initial value:

```
rpki.sql.template(
    "ca_detail",
    "ca_detail_id",
    ("private_key_id",           rpki.x509.RSA),
    ("public_key",               rpki.x509.RSAPublic),
    ("latest_ca_cert",          rpki.x509.X509),
    ("manifest_private_key_id",  rpki.x509.RSA),
    ("manifest_public_key",      rpki.x509.RSAPublic),
    ("latest_manifest_cert",    rpki.x509.X509),
    ("latest_manifest",          rpki.x509.SignedManifest),
    ("latest_crl",               rpki.x509.CRL),
    "state",
    "ca_cert_uri",
    "ca_id")
```

Definition at line 343 of file rpki_engine.py.

3.134.3.13 rpki.rpki_engine.ca_detail_obj.state

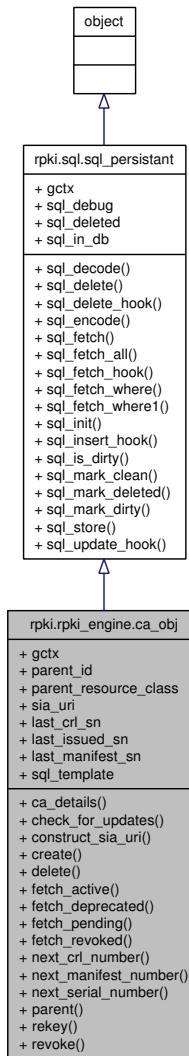
Definition at line 402 of file rpki_engine.py.

The documentation for this class was generated from the following file:

- [rpki_engine.py \(1932\)](#)

3.135 rpkirpki_engine.ca_obj Class Reference

Inheritance diagram for rpkirpki_engine.ca_obj:



Public Member Functions

- def [ca_details](#)
- def [check_for_updates](#)
- def [construct_sia_uri](#)
- def [create](#)

- def [delete](#)
- def [fetch_active](#)
- def [fetch_deprecated](#)
- def [fetch_pending](#)
- def [fetch_revoked](#)
- def [next_crl_number](#)
- def [next_manifest_number](#)
- def [next_serial_number](#)
- def [parent](#)
- def [rekey](#)
- def [revoke](#)

Public Attributes

- [gctx](#)
- [parent_id](#)
- [parent_resource_class](#)
- [sia_uri](#)

Static Public Attributes

- int [last_crl_sn](#) = 0
- int [last_issued_sn](#) = 0
- int [last_manifest_sn](#) = 0
- tuple [sql_template](#)

3.135.1 Detailed Description

Internal CA object.

Definition at line 160 of file rpki_engine.py.

3.135.2 Member Function Documentation

3.135.2.1 def rpki.rpki_engine.ca_obj.ca_details (*self*)

Fetch all ca_detail objects that link to this CA object.

Definition at line 180 of file rpki_engine.py.

3.135.2.2 def rpkirpki_engine.ca_obj.check_for_updates (*self, parent, rc*)

Parent has signaled continued existance of a resource class we already knew about, so we need to check for an updated certificate, changes in resource coverage, revocation and reissue with the same key, etc.

Definition at line 213 of file rpkirpki_engine.py.

3.135.2.3 def rpkirpki_engine.ca_obj.construct_sia_uri (*self, parent, rc*)

Construct the sia_uri value for this CA given configured information and the parent's up-down protocol list_response PDU.

Definition at line 200 of file rpkirpki_engine.py.

3.135.2.4 def rpkirpki_engine.ca_obj.create (*cls, parent, rc*)

Parent has signaled existance of a new resource class, so we need to create and set up a corresponding CA object.

Definition at line 255 of file rpkirpki_engine.py.

3.135.2.5 def rpkirpki_engine.ca_obj.delete (*self, parent*)

The list of current resource classes received from parent does not include the class corresponding to this CA, so we need to delete it (and its little dog too....).

All certs published by this CA are now invalid, so need to withdraw them, the CRL, and the manifest from the repository, delete all child_cert and ca_detail records associated with this CA, then finally delete this CA itself.

Definition at line 276 of file rpkirpki_engine.py.

3.135.2.6 def rpkirpki_engine.ca_obj.fetch_active (*self*)

Fetch the active ca_detail for this CA, if any.

Definition at line 188 of file rpkirpki_engine.py.

3.135.2.7 def rpki.rpki_engine.ca_obj.fetch_DEPRECATED (self)

Fetch deprecated ca_details for this CA, if any.

Definition at line 192 of file rpki_engine.py.

3.135.2.8 def rpki.rpki_engine.ca_obj.fetch_PENDING (self)

Fetch the pending ca_details for this CA, if any.

Definition at line 184 of file rpki_engine.py.

3.135.2.9 def rpki.rpki_engine.ca_obj.fetch_REVOKED (self)

Fetch revoked ca_details for this CA, if any.

Definition at line 196 of file rpki_engine.py.

3.135.2.10 def rpki.rpki_engine.ca_obj.next_crl_number (self)

Allocate a CRL serial number.

Definition at line 304 of file rpki_engine.py.

3.135.2.11 def rpki.rpki_engine.ca_obj.next_manifest_number (self)

Allocate a manifest serial number.

Definition at line 298 of file rpki_engine.py.

3.135.2.12 def rpki.rpki_engine.ca_obj.next_serial_number (self)

Allocate a certificate serial number.

Definition at line 292 of file rpki_engine.py.

3.135.2.13 def rpki.rpki_engine.ca_obj.parent (self)

Fetch parent object to which this CA object links.

Definition at line 176 of file rpki_engine.py.

3.135.2.14 def rpki.rpki_engine.ca_obj.rekey (*self*)

Initiate a rekey operation for this ca. Generate a new keypair. Request cert from parent using new keypair. Mark result as our active ca_detail. Reissue all child certs issued by this ca using the new ca_detail.

Definition at line 310 of file rpki_engine.py.

3.135.2.15 def rpki.rpki_engine.ca_obj.revoke (*self*)

Revoke deprecated ca_detail objects associated with this ca.

Definition at line 332 of file rpki_engine.py.

3.135.3 Member Data Documentation**3.135.3.1 rpki.rpki_engine.ca_obj.gctx**

Reimplemented from [rpki.sql.sql_persistent](#).

Definition at line 261 of file rpki_engine.py.

3.135.3.2 int rpki.rpki_engine.ca_obj.last_crl_sn = 0 [static]

Definition at line 172 of file rpki_engine.py.

3.135.3.3 int rpki.rpki_engine.ca_obj.last_issued_sn = 0 [static]

Definition at line 173 of file rpki_engine.py.

3.135.3.4 int rpki.rpki_engine.ca_obj.last_manifest_sn = 0 [static]

Definition at line 174 of file rpki_engine.py.

3.135.3.5 rpki.rpki_engine.ca_obj.parent_id

Definition at line 262 of file rpki_engine.py.

3.135.3.6 rpki.rpki_engine.ca_obj.parent_resource_class

Definition at line 263 of file rpki_engine.py.

3.135.3.7 rpki.rpki_engine.ca_obj.sia_uri

Definition at line 223 of file rpki_engine.py.

3.135.3.8 tuple rpki.rpki_engine.ca_obj.sql_template [static]**Initial value:**

```
rpki.sql.template(  
    "ca",  
    "ca_id",  
    "last_crl_sn",  
    ("next_crl_update", rpki.sundial.datetime),  
    "last_issued_sn", "last_manifest_sn",  
    ("next_manifest_update", rpki.sundial.datetime),  
    "sia_uri", "parent_id", "parent_resource_class")
```

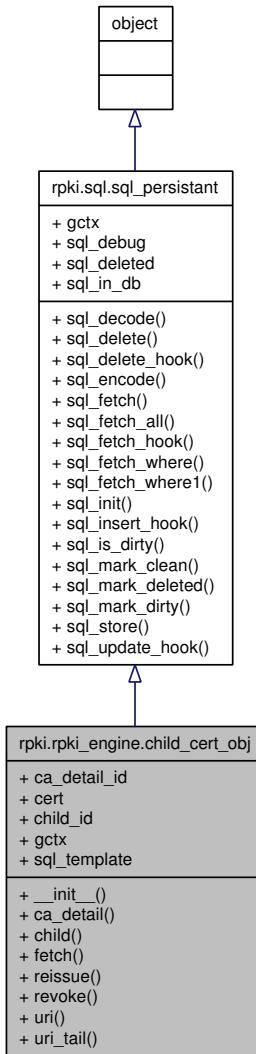
Definition at line 163 of file rpki_engine.py.

The documentation for this class was generated from the following file:

- [rpki_engine.py \(1932\)](#)

3.136 rpkirpki_engine.child_cert_obj Class Reference

Inheritance diagram for rpkirpki_engine.child_cert_obj:



Public Member Functions

- def `__init__`
- def `ca_detail`
- def `child`
- def `fetch`

- def [reissue](#)
- def [revoke](#)
- def [uri](#)
- def [uri_tail](#)

Public Attributes

- [ca_detail_id](#)
- [cert](#)
- [child_id](#)
- [gctx](#)

Static Public Attributes

- tuple [sql_template](#)

3.136.1 Detailed Description

Certificate that has been issued to a child.

Definition at line 643 of file rpki_engine.py.

3.136.2 Member Function Documentation

3.136.2.1 def rpki.rpki_engine.child_cert_obj.[__init__](#) (*self*, *gctx* = None, *child_id* = None, *ca_detail_id* = None, *cert* = None)

Initialize a `child_cert_obj`.

Definition at line 654 of file rpki_engine.py.

3.136.2.2 def rpki.rpki_engine.child_cert_obj.ca_detail (*self*)

Fetch `ca_detail` object to which this `child_cert` object links.

Definition at line 667 of file rpki_engine.py.

3.136.2.3 def rpki.rpki_engine.child_cert_obj.child (*self*)

Fetch `child` object to which this `child_cert` object links.

Definition at line 663 of file rpki_engine.py.

3.136.2.4 def rpkirpki_engine.child_cert_obj.fetch (cls, gctx = None, child = None, ca_detail = None, ski = None, unique = False)

Fetch all child_cert objects matching a particular set of parameters. This is a wrapper to consolidate various queries that would otherwise be inline SQL WHERE expressions. In most cases code calls this indirectly, through methods in other classes.

Definition at line 744 of file rpki_engine.py.

3.136.2.5 def rpkirpki_engine.child_cert_obj.reissue (self, ca_detail, resources = None, sia = None)

Reissue an existing cert, reusing the public key. If the cert we would generate is identical to the one we already have, we just return the one we already have. If we have to revoke the old certificate when generating the new one, we have to generate a new child_cert_obj, so calling code that needs the updated child_cert_obj must use the return value from this method.

Definition at line 690 of file rpki_engine.py.

3.136.2.6 def rpkirpki_engine.child_cert_obj.revoke (self)

Revoke a child cert.

Definition at line 679 of file rpki_engine.py.

3.136.2.7 def rpkirpki_engine.child_cert_obj.uri (self, ca)

Return the publication URI for this child_cert.

Definition at line 675 of file rpki_engine.py.

3.136.2.8 def rpkirpki_engine.child_cert_obj.uri_tail (self)

Return the tail (filename) portion of the URI for this child_cert.

Definition at line 671 of file rpki_engine.py.

3.136.3 Member Data Documentation**3.136.3.1 rpkirpki_engine.child_cert_obj.ca_detail_id**

Definition at line 658 of file rpki_engine.py.

3.136.3.2 rpki.rpki_engine.child_cert_obj.cert

Definition at line 659 of file rpki_engine.py.

3.136.3.3 rpki.rpki_engine.child_cert_obj.child_id

Definition at line 657 of file rpki_engine.py.

3.136.3.4 rpki.rpki_engine.child_cert_obj.getx

Reimplemented from [rpki.sql.sql_persistent](#).

Definition at line 656 of file rpki_engine.py.

3.136.3.5 tuple rpki.rpki_engine.child_cert_obj.sql_template [static]

Initial value:

```
rpki.sql.template(
    "child_cert",
    "child_cert_id",
    ("cert", rpki.x509.X509),
    "child_id",
    "ca_detail_id",
    "ski")
```

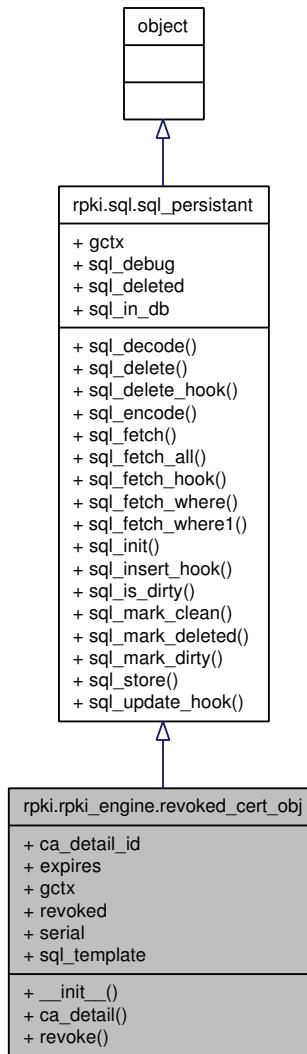
Definition at line 646 of file rpki_engine.py.

The documentation for this class was generated from the following file:

- [rpki_engine.py \(1932\)](#)

3.137 rpki.rpki_engine.revoked_cert_obj Class Reference

Inheritance diagram for rpki.rpki_engine.revoked_cert_obj:



Public Member Functions

- def [__init__](#)
- def [ca_detail](#)
- def [revoke](#)

Public Attributes

- [ca_detail_id](#)
- [expires](#)
- [gctx](#)
- [revoked](#)
- [serial](#)

Static Public Attributes

- tuple [sql_template](#)

3.137.1 Detailed Description

Tombstone for a revoked certificate.

Definition at line 775 of file rpki_engine.py.

3.137.2 Member Function Documentation

3.137.2.1 def rpki.rpki_engine.revoked_cert_obj.__init__ (*self*, *gctx* = None, *serial* = None, *revoked* = None, *expires* = None, *ca_detail_id* = None)

Initialize a revoked_cert_obj.

Definition at line 786 of file rpki_engine.py.

3.137.2.2 def rpki.rpki_engine.revoked_cert_obj.ca_detail (*self*)

Fetch ca_detail object to which this revoked_cert_obj links.

Definition at line 796 of file rpki_engine.py.

3.137.2.3 def rpki.rpki_engine.revoked_cert_obj.revoke (*cls*, *cert*, *ca_detail*)

Revoke a certificate.

Definition at line 801 of file rpki_engine.py.

3.137.3 Member Data Documentation

3.137.3.1 rpkি.rpki_engine.revoked_cert_obj.ca_detail_id

Definition at line 792 of file rpki_engine.py.

3.137.3.2 rpkি.rpki_engine.revoked_cert_obj.expires

Definition at line 791 of file rpki_engine.py.

3.137.3.3 rpkি.rpki_engine.revoked_cert_obj.gctx

Reimplemented from [rpkি.sql.sql_persistent](#).

Definition at line 788 of file rpki_engine.py.

3.137.3.4 rpkি.rpki_engine.revoked_cert_obj.revoked

Definition at line 790 of file rpki_engine.py.

3.137.3.5 rpkি.rpki_engine.revoked_cert_obj.serial

Definition at line 789 of file rpki_engine.py.

3.137.3.6 tuple rpkি.rpki_engine.revoked_cert_obj.sql_template [static]

Initial value:

```
rpkি.sql.template(
    "revoked_cert",
    "revoked_cert_id",
    "serial",
    "ca_detail_id",
    ("revoked", rpkি.sundial.datetime),
    ("expires", rpkি.sundial.datetime))
```

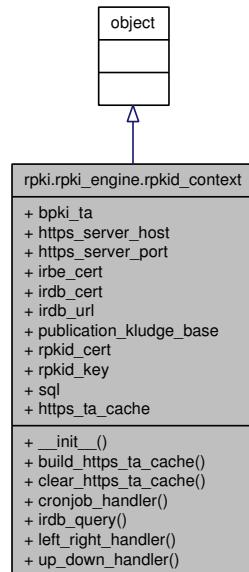
Definition at line 778 of file rpki_engine.py.

The documentation for this class was generated from the following file:

- [rpki_engine.py \(1932\)](#)

3.138 rpkid_context Class Reference

Inheritance diagram for rpkid_context:



Public Member Functions

- def [__init__](#)
- def [build_https_ta_cache](#)
- def [clear_https_ta_cache](#)
- def [cronjob_handler](#)
- def [irdb_query](#)
- def [left_right_handler](#)
- def [up_down_handler](#)

Public Attributes

- [bpki_ta](#)
- [https_server_host](#)
- [https_server_port](#)
- [irbe_cert](#)
- [irdb_cert](#)
- [irdb_url](#)
- [publication_kludge_base](#)

- [rpkid_cert](#)
- [rpkid_key](#)
- [sql](#)

Static Public Attributes

- [https_ta_cache](#) = None

HTTPS trust anchor cache, to avoid regenerating it for every TLS connection.

3.138.1 Detailed Description

A container for various global rpkid parameters.

Definition at line 24 of file rpki_engine.py.

3.138.2 Member Function Documentation

3.138.2.1 def rpkid_context.__init__(self, cfg)

Definition at line 27 of file rpki_engine.py.

3.138.2.2 def rpkid_context.build_https_ta_cache(self)

Build dynamic TLS trust anchors.

Definition at line 142 of file rpki_engine.py.

3.138.2.3 def rpkid_context.clear_https_ta_cache(self)

Clear dynamic TLS trust anchors.

Definition at line 135 of file rpki_engine.py.

3.138.2.4 def rpkid_context.cronjob_handler(self, query, path)

Periodic tasks. As simple as possible for now, may need to break this up into separate handlers later.

Definition at line 112 of file rpki_engine.py.

3.138.2.5 def rpki.rpki_engine.rpkid_context.irdb_query (*self*, *self_id*, *child_id* = None)

Perform an IRDB callback query. In the long run this should not be a blocking routine, it should instead issue a query and set up a handler to receive the response. For the moment, though, we are doing simple lock step and damn the torpedos. Not yet doing anything useful with subject name. Most likely this function should really be wrapped up in a class that carries both the query result and also the intermediate state needed for the event-driven code that this function will need to become.

Definition at line 44 of file rpki_engine.py.

3.138.2.6 def rpki.rpki_engine.rpkid_context.left_right_handler (*self*, *query*, *path*)

Process one left-right PDU.

Definition at line 78 of file rpki_engine.py.

3.138.2.7 def rpki.rpki_engine.rpkid_context.up_down_handler (*self*, *query*, *path*)

Process one up-down PDU.

Definition at line 94 of file rpki_engine.py.

3.138.3 Member Data Documentation

3.138.3.1 rpki.rpki_engine.rpkid_context.bpki_ta

Definition at line 31 of file rpki_engine.py.

3.138.3.2 rpki.rpki_engine.rpkid_context.https_server_host

Definition at line 39 of file rpki_engine.py.

3.138.3.3 rpki.rpki_engine.rpkid_context.https_server_port

Definition at line 40 of file rpki_engine.py.

3.138.3.4 rpki::rpki_engine.rpkid_context::https_ta_cache = None [static]

HTTPS trust anchor cache, to avoid regenerating it for every TLS connection.

Definition at line 133 of file rpki_engine.py.

3.138.3.5 rpki.rpki_engine.rpkid_context.irbe_cert

Definition at line 33 of file rpki_engine.py.

3.138.3.6 rpki.rpki_engine.rpkid_context.irdb_cert

Definition at line 32 of file rpki_engine.py.

3.138.3.7 rpki.rpki_engine.rpkid_context.irdb_url

Definition at line 37 of file rpki_engine.py.

3.138.3.8 rpki.rpki_engine.rpkid_context.publication_kludge_base

Definition at line 42 of file rpki_engine.py.

3.138.3.9 rpki.rpki_engine.rpkid_context.rpkid_cert

Definition at line 34 of file rpki_engine.py.

3.138.3.10 rpki.rpki_engine.rpkid_context.rpkid_key

Definition at line 35 of file rpki_engine.py.

3.138.3.11 rpki.rpki_engine.rpkid_context.sql

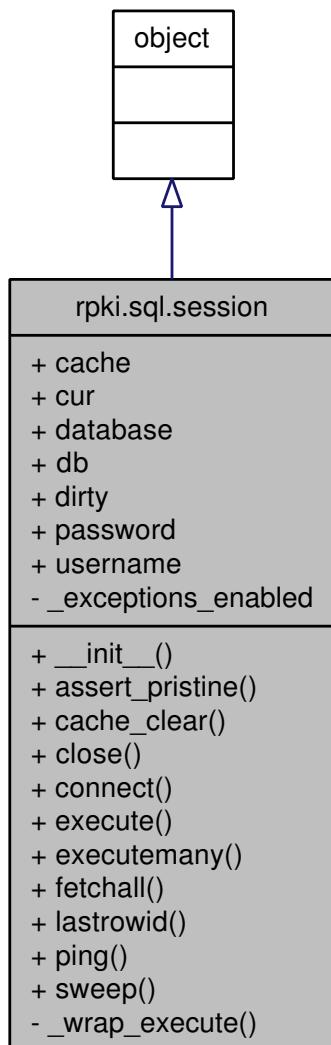
Definition at line 29 of file rpki_engine.py.

The documentation for this class was generated from the following file:

- [rpki_engine.py \(1932\)](#)

3.139 rpki.sql.session Class Reference

Inheritance diagram for rpki.sql.session:



Public Member Functions

- def `__init__`
- def `assert_pristine`
- def `cache_clear`
- def `close`

- def [connect](#)
- def [execute](#)
- def [executemany](#)
- def [fetchall](#)
- def [lastrowid](#)
- def [ping](#)
- def [sweep](#)

Public Attributes

- [cache](#)
- [cur](#)
- [database](#)
- [db](#)
- [dirty](#)
- [password](#)
- [username](#)

Private Member Functions

- def [_wrap_execute](#)

Static Private Attributes

- [_exceptions_enabled](#) = False

3.139.1 Detailed Description

SQL session layer.

Definition at line 23 of file sql.py.

3.139.2 Member Function Documentation

3.139.2.1 def rpkysql.session.__init__(self, cfg)

Definition at line 28 of file sql.py.

3.139.2.2 def rpkysql.session._wrap_execute (self, func, query, args) [private]

Definition at line 58 of file sql.py.

3.139.2.3 def rpki.sql.session.assert_pristine (*self*)

Assert that there are no dirty objects in the cache.

Definition at line 82 of file sql.py.

3.139.2.4 def rpki.sql.session.cache_clear (*self*)

Clear the object cache.

Definition at line 78 of file sql.py.

3.139.2.5 def rpki.sql.session.close (*self*)

Definition at line 47 of file sql.py.

3.139.2.6 def rpki.sql.session.connect (*self*)

Definition at line 43 of file sql.py.

3.139.2.7 def rpki.sql.session.execute (*self*, *query*, *args* = None)

Definition at line 66 of file sql.py.

3.139.2.8 def rpki.sql.session.executemany (*self*, *query*, *args*)

Definition at line 69 of file sql.py.

3.139.2.9 def rpki.sql.session.fetchall (*self*)

Definition at line 72 of file sql.py.

3.139.2.10 def rpki.sql.session.lastrowid (*self*)

Definition at line 75 of file sql.py.

3.139.2.11 def rpki.sql.session.ping (*self*)

Definition at line 55 of file sql.py.

3.139.2.12 def rpki.sql.session.sweep (*self*)

Write any dirty objects out to SQL.

Definition at line 86 of file sql.py.

3.139.3 Member Data Documentation**3.139.3.1 rpki.sql.session._exceptions_enabled = False [static, private]**

Definition at line 26 of file sql.py.

3.139.3.2 rpki.sql.session.cache

Definition at line 38 of file sql.py.

3.139.3.3 rpki.sql.session.cur

Definition at line 45 of file sql.py.

3.139.3.4 rpki.sql.session.database

Definition at line 35 of file sql.py.

3.139.3.5 rpki.sql.session.db

Definition at line 44 of file sql.py.

3.139.3.6 rpki.sql.session.dirty

Definition at line 39 of file sql.py.

3.139.3.7 rpki.sql.session.password

Definition at line 36 of file sql.py.

3.139.3.8 rpki.sql.session.username

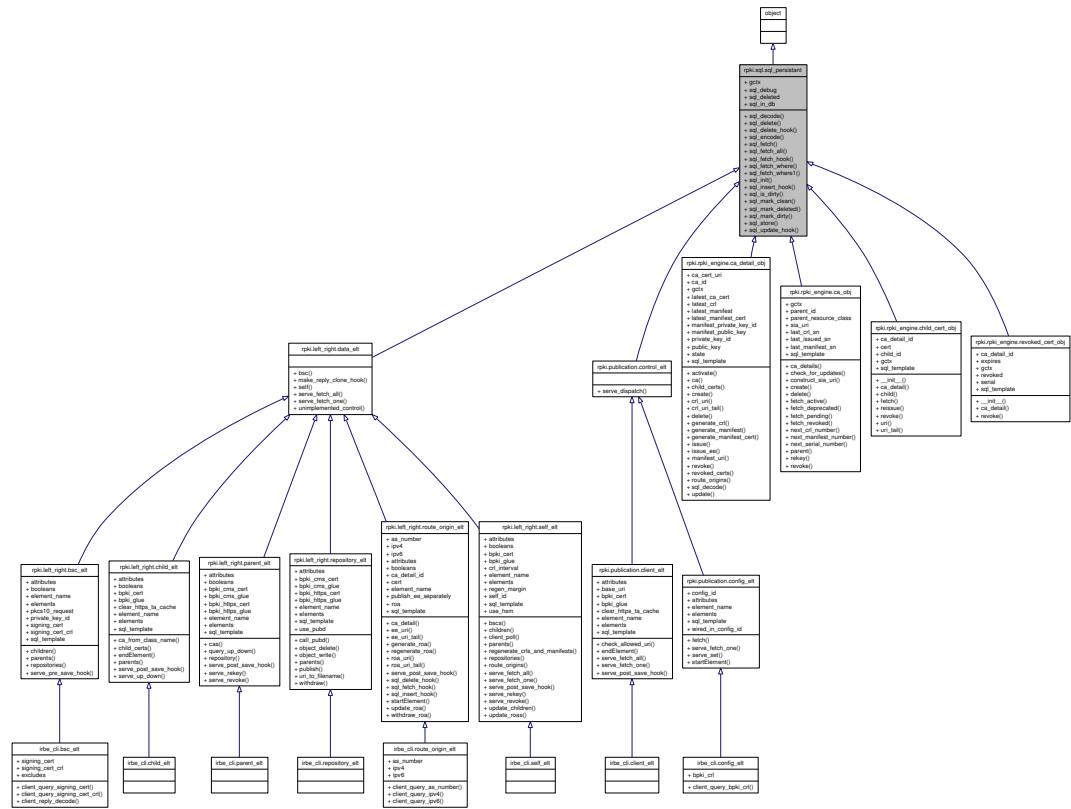
Definition at line 34 of file sql.py.

The documentation for this class was generated from the following file:

- [sql.py \(1979\)](#)

3.140 rpkiclient.sql.sql_persistent Class Reference

Inheritance diagram for rpkি.sql.sql_persistent



Public Member Functions

- def `sql_decode`
 - def `sql_delete`
 - def `sql_delete_hook`
 - def `sql_encode`
 - def `sql_fetch`
 - def `sql_fetch_all`
 - def `sql_fetch_hook`
 - def `sql_fetch_where`
 - def `sql_fetch_where1`
 - def `sql_init`
 - def `sql_insert_hook`

- def `sql_is_dirty`
- def `sql_mark_clean`
- def `sql_mark_deleted`
- def `sql_mark_dirty`
- def `sql_store`
- def `sql_update_hook`

Public Attributes

- `gctx`

Static Public Attributes

- `sql_debug` = False
Enable logging of SQL actions.
- `sql_deleted` = False
Whether our cached copy of this `object` has been deleted.
- `sql_in_db` = False
Whether this `object` is already in SQL or not.

3.140.1 Detailed Description

Mixin for persistent class that needs to be stored in SQL.

Definition at line 115 of file sql.py.

3.140.2 Member Function Documentation

3.140.2.1 def rpki.sql.sql_persistent.sql_decode (*self*, *vals*)

Initialize an object with values returned by `self.sql_fetch()`. This is a default version that assumes a one-to-one mapping between column names in SQL and attribute names in Python. If you need something fancier, override this.

Reimplemented in `rpki.rpki_engine.ca_detail_obj`.

Definition at line 267 of file sql.py.

3.140.2.2 def rpki.sql.sql_persistent.sql_delete (*self*)

Delete this object from SQL.

Definition at line 243 of file sql.py.

3.140.2.3 def rpki.sql.sql_persistent.sql_delete_hook (*self*)

Customization hook.

Reimplemented in [rpki.left_right.route_origin_elt](#).

Definition at line 292 of file sql.py.

3.140.2.4 def rpki.sql.sql_persistent.sql_encode (*self*)

Convert object attributes into a dict for use with canned SQL queries. This is a default version that assumes a one-to-one mapping between column names in SQL and attribute names in Python. If you need something fancier, override this.

Definition at line 255 of file sql.py.

3.140.2.5 def rpki.sql.sql_persistent.sql_fetch (*cls*, *gctx*, *id*)

Fetch one object from SQL, based on its primary key.

Since in this one case we know that the primary index is also the cache key, we check for a cache hit directly in the hope of bypassing the SQL lookup entirely.

This method is usually called via a one-line class-specific wrapper. As a convenience, we also accept an id of None, and just return None in this case.

Definition at line 135 of file sql.py.

3.140.2.6 def rpki.sql.sql_persistent.sql_fetch_all (*cls*, *gctx*)

Fetch all objects of this type from SQL.

Definition at line 170 of file sql.py.

3.140.2.7 def rpki.sql.sql_persistent.sql_fetch_hook (*self*)

Customization hook.

Reimplemented in [rpki.left_right.route_origin_elt](#).

Definition at line 279 of file sql.py.

3.140.2.8 def rpki.sql.sql_persistent.sql_fetch_where (*cls, gctx, where, args = None*)

Fetch objects of this type matching an arbitrary SQL WHERE expression.

Definition at line 175 of file sql.py.

3.140.2.9 def rpki.sql.sql_persistent.sql_fetch_where1 (*cls, gctx, where, args = None*)

Fetch one object from SQL, based on an arbitrary SQL WHERE expression.

Definition at line 157 of file sql.py.

3.140.2.10 def rpki.sql.sql_persistent.sql_init (*cls, gctx, row, key*)

Initialize one Python object from the result of a SQL query.

Definition at line 197 of file sql.py.

3.140.2.11 def rpki.sql.sql_persistent.sql_insert_hook (*self*)

Customization hook.

Reimplemented in [rpki.left_right.route_origin_elt](#).

Definition at line 283 of file sql.py.

3.140.2.12 def rpki.sql.sql_persistent.sql_is_dirty (*self*)

Query whether this object needs to be written back to SQL.

Definition at line 215 of file sql.py.

3.140.2.13 def rpki.sql.sql_persistent.sql_mark_clean (*self*)

Mark this object as not needing to be written back to SQL.

Definition at line 211 of file sql.py.

3.140.2.14 def rpki.sql.sql_persistent.sql_mark_deleted (*self*)

Mark this object as needing to be deleted in SQL.

Definition at line 219 of file sql.py.

3.140.2.15 def rpki.sql.sql_persistent.sql_mark_dirty (*self*)

Mark this object as needing to be written back to SQL.

Definition at line 207 of file sql.py.

3.140.2.16 def rpki.sql.sql_persistent.sql_store (*self*)

Store this object to SQL.

Definition at line 223 of file sql.py.

3.140.2.17 def rpki.sql.sql_persistent.sql_update_hook (*self*)

Customization hook.

Definition at line 287 of file sql.py.

3.140.3 Member Data Documentation**3.140.3.1 rpki.sql.sql_persistent.getx**

Reimplemented in [rpki.rpki_engine.ca_obj](#), [rpki.rpki_engine.ca_detail_obj](#), [rpki.rpki_engine.child_cert_obj](#), and [rpki.rpki_engine.revoked_cert_obj](#).

Definition at line 200 of file sql.py.

3.140.3.2 rpki::sql::sql_persistent::sql_debug = False [static]

Enable logging of SQL actions.

Definition at line 132 of file sql.py.

3.140.3.3 rpkি::sql.sql_persistent::sql_deleted = False [static]

Whether our cached copy of this [object](#) has been deleted.

Definition at line 127 of file sql.py.

3.140.3.4 rpkি::sql.sql_persistent::sql_in_db = False [static]

Whether this [object](#) is already in SQL or not.

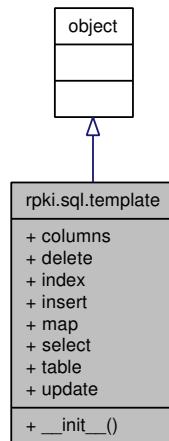
Definition at line 122 of file sql.py.

The documentation for this class was generated from the following file:

- [sql.py \(1979\)](#)

3.141 rpkি.sql.template Class Reference

Inheritance diagram for rpkি.sql.template:

**Public Member Functions**

- def [__init__](#)

Public Attributes

- [columns](#)
- [delete](#)
- [index](#)

- [insert](#)
- [map](#)
- [select](#)
- [table](#)
- [update](#)

3.141.1 Detailed Description

SQL template generator.

Definition at line 96 of file sql.py.

3.141.2 Member Function Documentation

3.141.2.1 def rpki.sql.template.__init__ (*self*, *table_name*, *index_column*, *data_columns*)

Build a SQL template.

Definition at line 98 of file sql.py.

3.141.3 Member Data Documentation

3.141.3.1 rpki.sql.template.columns

Definition at line 105 of file sql.py.

3.141.3.2 rpki.sql.template.delete

Definition at line 113 of file sql.py.

3.141.3.3 rpki.sql.template.index

Definition at line 104 of file sql.py.

3.141.3.4 rpki.sql.template.insert

Definition at line 108 of file sql.py.

3.141.3.5 rpki.sql.template.map

Definition at line 106 of file sql.py.

3.141.3.6 rpki.sql.template.select

Definition at line 107 of file sql.py.

3.141.3.7 rpki.sql.template.table

Definition at line 103 of file sql.py.

3.141.3.8 rpki.sql.template.update

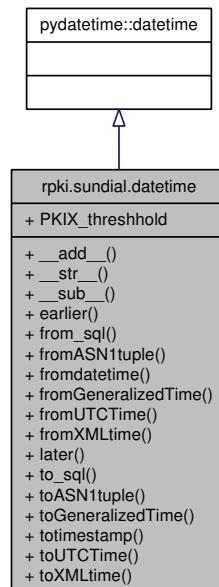
Definition at line 110 of file sql.py.

The documentation for this class was generated from the following file:

- [sql.py \(1979\)](#)

3.142 rpki.sundial.datetime Class Reference

Inheritance diagram for rpki.sundial.datetime:



Public Member Functions

- def [__add__](#)
- def [__str__](#)

- def `__sub__`
- def `earlier`
- def `from_sql`
- def `fromASN1tuple`
- def `fromdatetime`
- def `fromGeneralizedTime`
- def `fromUTCTime`
- def `fromXMLtime`
- def `later`
- def `to_sql`
- def `toASN1tuple`
- def `toGeneralizedTime`
- def `totimestamp`
- def `toUTCTime`
- def `toXMLtime`

Static Public Attributes

- tuple `PKIX_threshold` = pydatetime.datetime(2050, 1, 1)

Threshold specified in RFC 3280 for switchover from UTCTime to GeneralizedTime.

3.142.1 Detailed Description

RPKI extensions to standard `datetime.datetime` class. All work here is in UTC, so we use naive `datetime` objects.

Definition at line 30 of file `sundial.py`.

3.142.2 Member Function Documentation

3.142.2.1 def rpkisundial.datetime.__add__ (*self, other*)

Force correct class for `timedelta` results.

Definition at line 102 of file `sundial.py`.

3.142.2.2 def rpkisundial.datetime.__str__ (*self*)

Definition at line 92 of file `sundial.py`.

3.142.2.3 def rpki.sundial.datetime.__sub__ (*self, other*)

Force correct class for timedelta results.

Definition at line 106 of file sundial.py.

3.142.2.4 def rpki.sundial.datetime.earlier (*self, other*)

Return the earlier of two timestamps.

Definition at line 133 of file sundial.py.

3.142.2.5 def rpki.sundial.datetime.from_sql (*cls, x*)

Convert from SQL storage format.

Definition at line 111 of file sundial.py.

3.142.2.6 def rpki.sundial.datetime.fromASN1tuple (*cls, x*)

Convert from ASN.1 tuple representation.

Definition at line 60 of file sundial.py.

3.142.2.7 def rpki.sundial.datetime.fromdatetime (*cls, x*)

Convert a datetime.datetime object into this subclass.
This is whacky due to the weird constructors for datetime.

Definition at line 96 of file sundial.py.

3.142.2.8 def rpki.sundial.datetime.fromGeneralizedTime (*cls, x*)

Convert from ASN.1 GeneralizedTime.

Definition at line 51 of file sundial.py.

3.142.2.9 def rpki.sundial.datetime.fromUTCTime (*cls, x*)

Convert from ASN.1 UTCTime.

Definition at line 42 of file sundial.py.

3.142.2.10 def rpki.sundial.datetime.fromXMLtime (*cls*, *x*)

Convert from XML time representation.

Definition at line 81 of file sundial.py.

3.142.2.11 def rpki.sundial.datetime.later (*self*, *other*)

Return the later of two timestamps.

Definition at line 129 of file sundial.py.

3.142.2.12 def rpki.sundial.datetime.to_sql (*self*)

Convert to SQL storage format.

There's something whacky going on in the MySQLdb module, it throws range errors when storing a derived type into a DATETIME column. Investigate some day, but for now brute force this by copying the relevant fields into a datetime.datetime for MySQLdb's consumption.

Definition at line 115 of file sundial.py.

3.142.2.13 def rpki.sundial.datetime.toASN1tuple (*self*)

Convert to ASN.1 tuple representation.

Definition at line 73 of file sundial.py.

3.142.2.14 def rpki.sundial.datetime.toGeneralizedTime (*self*)

Convert to ASN.1 GeneralizedTime.

Definition at line 55 of file sundial.py.

3.142.2.15 def rpki.sundial.datetime.totimestamp (*self*)

Convert to seconds from epoch (like time.time()). Conversion method is a bit silly, but avoids time module timezone whackiness.

Definition at line 35 of file sundial.py.

3.142.2.16 def rpki.sundial.datetime.toUTCTime (*self*)

Convert to ASN.1 UTCTime.

Definition at line 46 of file sundial.py.

3.142.2.17 def rpki.sundial.datetime.toXMLtime (*self*)

Convert to XML time representation.

Definition at line 88 of file sundial.py.

3.142.3 Member Data Documentation**3.142.3.1 rpki::sundial.datetime::PKIX_threshold = pydate-time.datetime(2050, 1, 1) [static]**

Threshold specified in RFC 3280 for switchover from UTCTime to GeneralizedTime.

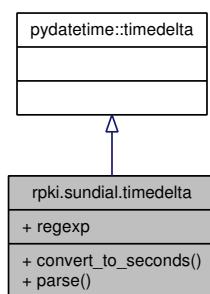
Definition at line 71 of file sundial.py.

The documentation for this class was generated from the following file:

- [sundial.py \(1915\)](#)

3.143 rpki.sundial.timedelta Class Reference

Inheritance diagram for rpki.sundial.timedelta:

**Public Member Functions**

- def [convert_to_seconds](#)
- def [parse](#)

Static Public Attributes

- tuple `regexp`

Hideously ugly regular expression to parse the complex text form.

3.143.1 Detailed Description

Timedelta with text parsing. This accepts two input formats:

- A simple integer, indicating a number of seconds.
- A string of the form "wD xH yM zS" where w, x, y, and z are integers and D, H, M, and S indicate days, hours, minutes, and seconds.
All of the fields are optional, but at least one must be specified.
Eg, "3D4H" means "three days plus four hours".

Definition at line 137 of file sundial.py.

3.143.2 Member Function Documentation

3.143.2.1 def rpkisundial.timedelta.convert_to_seconds (*self*)

Convert a timedelta interval to seconds.

Definition at line 176 of file sundial.py.

3.143.2.2 def rpkisundial.timedelta.parse (*cls*, *arg*)

Parse text into a timedelta object.

Definition at line 162 of file sundial.py.

3.143.3 Member Data Documentation

3.143.3.1 rpkisundial.timedelta::regexp [static]

Initial value:

```
re.compile("\s*.join(("^",
                     "(?: (?P<days>\d+)D)?",
                     "(?: (?P<hours>\d+)H)?",
                     "(?: (?P<minutes>\d+)M)?",
                     "(?: (?P<seconds>\d+)S)?",
                     "$")),
                    re.I)
```

Hideously ugly regular expression to parse the complex text form.

Tags are intended for use with `re.MatchObject.groupdict()` and map directly to the keywords expected by the `timedelta` constructor.

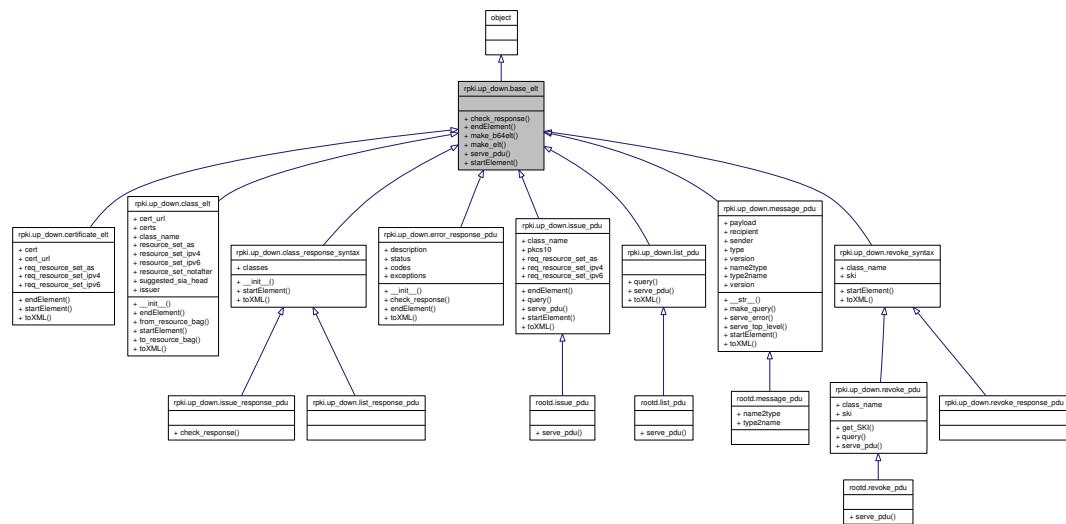
Definition at line 153 of file sundial.py.

The documentation for this class was generated from the following file:

- sundial.py (1915)

3.144 rpkiclient.up_down.base_elt Class Reference

Inheritance diagram for rpki.up_down.base_elt:



Public Member Functions

- def `check_response`
 - def `endElement`
 - def `make_b64elt`
 - def `make_elt`
 - def `serve_pdu`
 - def `startElement`

3.144.1 Detailed Description

Generic PDU object.

Virtual class, just provides some default methods.

Definition at line 28 of file up_down.py.

3.144.2 Member Function Documentation

3.144.2.1 def rpki.up_down.base_elt.check_response (*self*)

Placeholder for response checking.

Reimplemented in [rpki.up_down.issue_response_pdu](#), and [rpki.up_down.error_response_pdu](#).

Definition at line 69 of file up_down.py.

3.144.2.2 def rpki.up_down.base_elt.endElement (*self, stack, name, text*)

Ignore endElement() if there's no specific handler.

If we don't need to do anything else, just pop the stack.

Reimplemented in [rpki.up_down.certificate_elt](#), [rpki.up_down.class_elt](#), [rpki.up_down.issue_pdu](#), and [rpki.up_down.error_response_pdu](#).

Definition at line 42 of file up_down.py.

3.144.2.3 def rpki.up_down.base_elt.make_b64elt (*self, elt, name, value = None*)

Construct a sub-element with Base64 text content.

Definition at line 58 of file up_down.py.

3.144.2.4 def rpki.up_down.base_elt.make_elt (*self, name, attrs*)

Construct a element, copying over a set of attributes.

Definition at line 49 of file up_down.py.

3.144.2.5 def rpki.up_down.base_elt.serve_pdu (*self*, *q_msg*, *r_msg*, *child*)

Default PDU handler to catch unexpected types.

Reimplemented in [rpki.up_down.list_pdu](#), [rpki.up_down.issue_pdu](#), [rpki.up_down.revoke_pdu](#), [rootd.list_pdu](#), [rootd.issue_pdu](#), and [rootd.revoke_pdu](#).

Definition at line 65 of file up_down.py.

3.144.2.6 def rpki.up_down.base_elt.startElement (*self*, *stack*, *name*, *attrs*)

Ignore startElement() if there's no specific handler.

Some elements have no attributes and we only care about their text content.

Reimplemented in [rpki.up_down.certificate_elt](#), [rpki.up_down.class_elt](#), [rpki.up_down.class_response_syntax](#), [rpki.up_down.issue_pdu](#), [rpki.up_down.revoke_syntax](#), and [rpki.up_down.message_pdu](#).

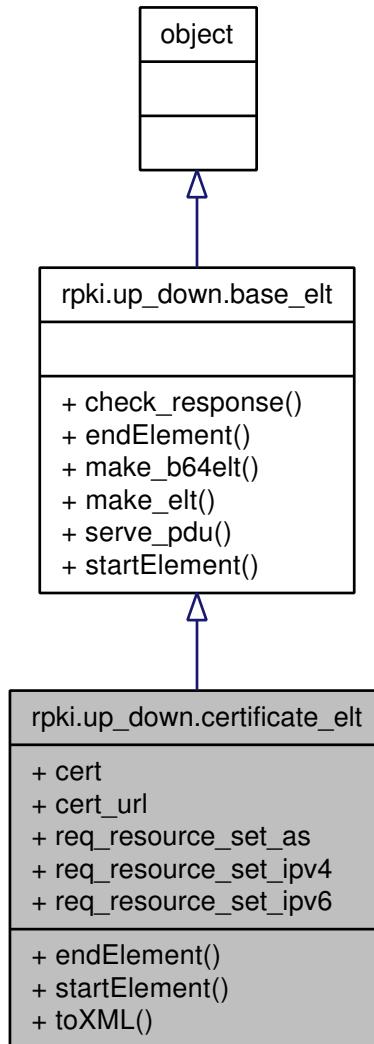
Definition at line 34 of file up_down.py.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.145 rpk.up_down.certificate_elt Class Reference

Inheritance diagram for rpk.up_down.certificate_elt:



Public Member Functions

- def `endElement`
- def `startElement`
- def `toXML`

Public Attributes

- [cert](#)
- [cert_url](#)
- [req_resource_set_as](#)
- [req_resource_set_ipv4](#)
- [req_resource_set_ipv6](#)

3.145.1 Detailed Description

Up-Down protocol representation of an issued certificate.

Definition at line 99 of file up_down.py.

3.145.2 Member Function Documentation

3.145.2.1 def rpki.up_down.certificate_elt.endElement (*self, stack, name, text*)

Handle text content of a <certificate/> element.

Reimplemented from [rpki.up_down.base_elt](#).

Definition at line 110 of file up_down.py.

3.145.2.2 def rpki.up_down.certificate_elt.startElement (*self, stack, name, attrs*)

Handle attributes of <certificate/> element.

Reimplemented from [rpki.up_down.base_elt](#).

Definition at line 102 of file up_down.py.

3.145.2.3 def rpki.up_down.certificate_elt.toXML (*self*)

Generate a <certificate/> element.

Definition at line 116 of file up_down.py.

3.145.3 Member Data Documentation

3.145.3.1 rpki.up_down.certificate_elt.cert

Definition at line 113 of file up_down.py.

3.145.3.2 rpki.up_down.certificate_elt.cert_url

Definition at line 105 of file up_down.py.

3.145.3.3 rpki.up_down.certificate_elt.req_resource_set_as

Definition at line 106 of file up_down.py.

3.145.3.4 rpki.up_down.certificate_elt.req_resource_set_ipv4

Definition at line 107 of file up_down.py.

3.145.3.5 rpki.up_down.certificate_elt.req_resource_set_ipv6

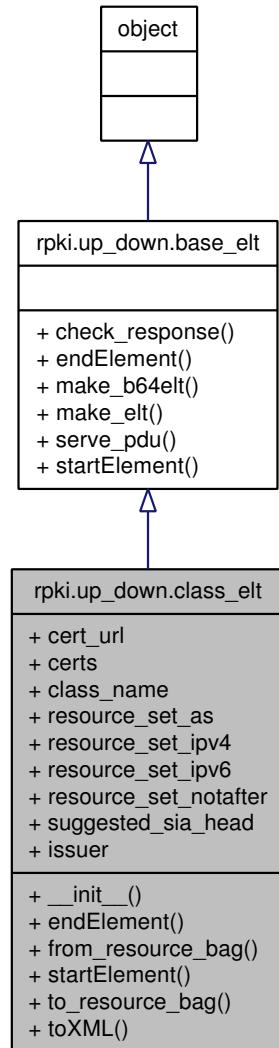
Definition at line 108 of file up_down.py.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.146 rpk.up_down.class_elt Class Reference

Inheritance diagram for rpk.up_down.class_elt:



Public Member Functions

- def `__init__`
- def `endElement`
- def `from_resource_bag`
- def `startElement`

- def [to_resource_bag](#)
- def [toXML](#)

Public Attributes

- [cert_url](#)
- [certs](#)
- [class_name](#)
- [resource_set_as](#)
- [resource_set_ipv4](#)
- [resource_set_ipv6](#)
- [resource_set_notafter](#)
- [suggested_sia_head](#)

Static Public Attributes

- [issuer](#) = None

3.146.1 Detailed Description

Up-Down protocol representation of a resource class.

Definition at line 123 of file up_down.py.

3.146.2 Member Function Documentation

3.146.2.1 def rpk.up_down.class_elt.__init__ (*self*)

Initialize class_elt.

Definition at line 128 of file up_down.py.

3.146.2.2 def rpk.up_down.class_elt.endElement (*self, stack, name, text*)

Handle <class/> elements and their children.

Reimplemented from [rpk.up_down.base_elt](#).

Definition at line 149 of file up_down.py.

3.146.2.3 def rpki.up_down.class_elt.from_resource_bag (*self*, *bag*)

Set resources of this class element from a resource_bag.

Definition at line 174 of file up_down.py.

3.146.2.4 def rpki.up_down.class_elt.startElement (*self*, *stack*, *name*, *attrs*)

Handle <class/> elements and their children.

Reimplemented from [rpki.up_down.base_elt](#).

Definition at line 132 of file up_down.py.

3.146.2.5 def rpki.up_down.class_elt.to_resource_bag (*self*)

Build a resource_bag from from this <class/> element.

Definition at line 167 of file up_down.py.

3.146.2.6 def rpki.up_down.class_elt.toXML (*self*)

Generate a <class/> element.

Definition at line 157 of file up_down.py.

3.146.3 Member Data Documentation**3.146.3.1 rpki.up_down.class_elt.cert_url**

Definition at line 142 of file up_down.py.

3.146.3.2 rpki.up_down.class_elt.certs

Definition at line 130 of file up_down.py.

3.146.3.3 rpki.up_down.class_elt.class_name

Definition at line 141 of file up_down.py.

3.146.3.4 rpki.up_down.class_elt.issuer = None [static]

Definition at line 126 of file up_down.py.

3.146.3.5 rpki.up_down.class_elt.resource_set_as

Definition at line 144 of file up_down.py.

3.146.3.6 rpki.up_down.class_elt.resource_set_ipv4

Definition at line 145 of file up_down.py.

3.146.3.7 rpki.up_down.class_elt.resource_set_ipv6

Definition at line 146 of file up_down.py.

3.146.3.8 rpki.up_down.class_elt.resource_set_notafter

Definition at line 147 of file up_down.py.

3.146.3.9 rpki.up_down.class_elt.suggested_sia_head

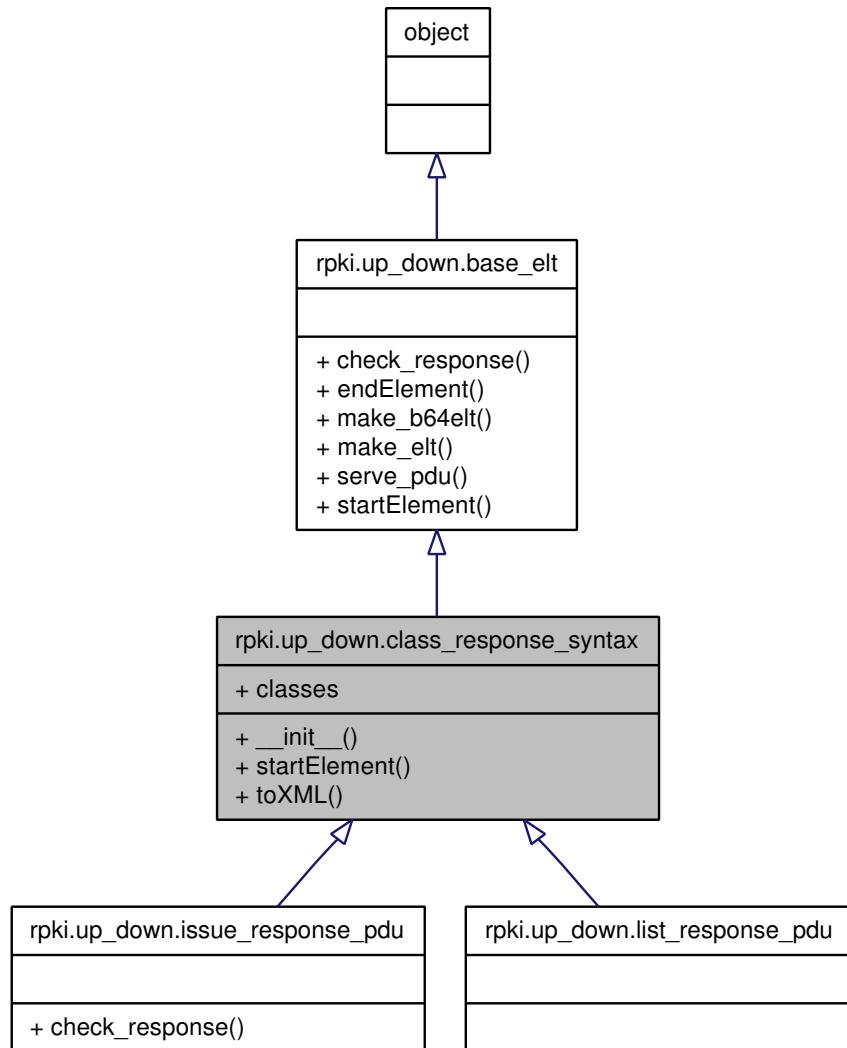
Definition at line 143 of file up_down.py.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.147 rpki.up_down.class_response_syntax Class Reference

Inheritance diagram for rpki.up_down.class_response_syntax:



Public Member Functions

- def [`__init__`](#)
- def [`startElement`](#)
- def [`toXML`](#)

Public Attributes

- [classes](#)

3.147.1 Detailed Description

Syntax for Up-Down protocol "list_response" and "issue_response" PDUs.

Definition at line 220 of file up_down.py.

3.147.2 Member Function Documentation

3.147.2.1 def rpki.up_down.class_response_syntax.__init__ (*self*)

Initialize class_response_syntax.

Definition at line 223 of file up_down.py.

3.147.2.2 def rpki.up_down.class_response_syntax.startElement (*self*, *stack*, *name*, *attrs*)

Handle "list_response" and "issue_response" PDUs.

Reimplemented from [rpki.up_down.base_elt](#).

Definition at line 227 of file up_down.py.

3.147.2.3 def rpki.up_down.class_response_syntax.toXML (*self*)

Generate payload of "list_response" and "issue_response" PDUs.

Definition at line 235 of file up_down.py.

3.147.3 Member Data Documentation

3.147.3.1 rpki.up_down.class_response_syntax.classes

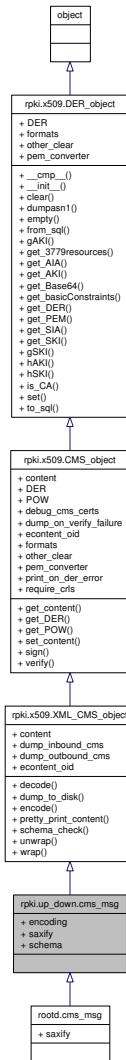
Definition at line 225 of file up_down.py.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.148 rpk.up_down.cms_msg Class Reference

Inheritance diagram for rpk.up_down.cms_msg:



Static Public Attributes

- string `encoding` = "UTF-8"
- `saxify` = `sax_handler.saxify`
- `schema` = `rpk.relaxng.up_down`

3.148.1 Detailed Description

Class to hold a CMS-signed up-down PDU.

Definition at line 528 of file `up_down.py`.

3.148.2 Member Data Documentation

3.148.2.1 `string rpkid.up_down.cms_msg.encoding = "UTF-8"` [static]

Definition at line 531 of file `up_down.py`.

3.148.2.2 `rpkid.up_down.cms_msg.saxify = sax_handler.saxify` [static]

Reimplemented in [rootd.cms_msg](#).

Definition at line 533 of file `up_down.py`.

3.148.2.3 `rpkid.up_down.cms_msg.schema = rpkid.relaxng.up_down` [static]

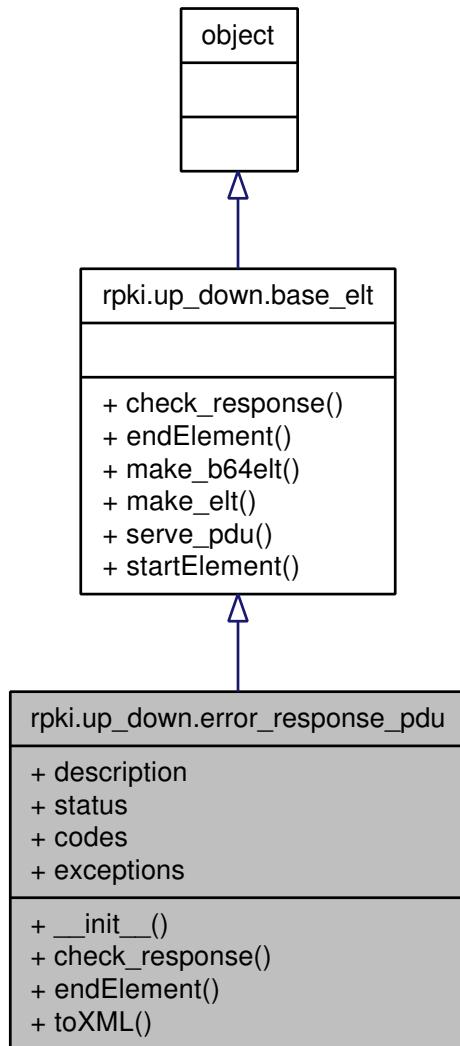
Definition at line 532 of file `up_down.py`.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.149 rpk.up_down.error_response_pdu Class Reference

Inheritance diagram for rpk.up_down.error_response_pdu:



Public Member Functions

- def `__init__`
- def `check_response`
- def `endElement`
- def `toXML`

Public Attributes

- `description`
- `status`

Static Public Attributes

- dictionary `codes`
- dictionary `exceptions` = { }

3.149.1 Detailed Description

Up-Down protocol "error_response" PDU.

Definition at line 389 of file up_down.py.

3.149.2 Member Function Documentation

3.149.2.1 def rpki.up_down.error_response_pdu.__init__ (*self*, *exception* = None)

Initialize an error_response PDU from an exception object.

Definition at line 405 of file up_down.py.

3.149.2.2 def rpki.up_down.error_response_pdu.check_response (*self*)

Handle an error response. For now, just raise an exception, perhaps figure out something more clever to do later.

Reimplemented from `rpki.up_down.base_elt`.

Definition at line 441 of file up_down.py.

3.149.2.3 def rpki.up_down.error_response_pdu.endElement (*self*, *stack*, *name*, *text*)

Handle "error_response" PDU.

Reimplemented from `rpki.up_down.base_elt`.

Definition at line 414 of file up_down.py.

3.149.2.4 def rpki.up_down.error_response_pdu.toXML (*self*)

Generate payload of "error_response" PDU.

Definition at line 428 of file up_down.py.

3.149.3 Member Data Documentation**3.149.3.1 dictionary rpki.up_down.error_response_pdu.codes [static]**

Initial value:

```
{  
    1101 : "Already processing request",  
    1102 : "Version number error",  
    1103 : "Unrecognised request type",  
    1201 : "Request - no such resource class",  
    1202 : "Request - no resources allocated in resource class",  
    1203 : "Request - badly formed certificate request",  
    1301 : "Revoke - no such resource class",  
    1302 : "Revoke - no such key",  
    2001 : "Internal Server Error - Request not performed" }
```

Definition at line 392 of file up_down.py.

3.149.3.2 rpki.up_down.error_response_pdu.description

Definition at line 412 of file up_down.py.

3.149.3.3 dictionary rpki.up_down.error_response_pdu.exceptions = {} [static]

Definition at line 403 of file up_down.py.

3.149.3.4 rpki.up_down.error_response_pdu.status

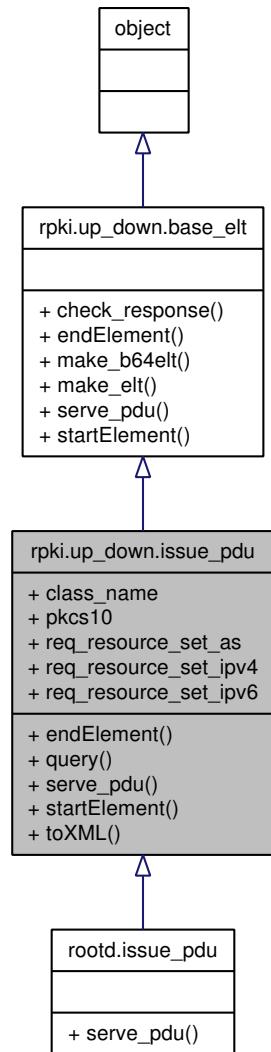
Definition at line 409 of file up_down.py.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.150 rpk.up_down.issue_pdu Class Reference

Inheritance diagram for rpk.up_down.issue_pdu:



Public Member Functions

- def `endElement`
- def `query`
- def `serve_pdu`
- def `startElement`

- def [toXML](#)

Public Attributes

- [class_name](#)
- [pkcs10](#)
- [req_resource_set_as](#)
- [req_resource_set_ipv4](#)
- [req_resource_set_ipv6](#)

3.150.1 Detailed Description

Up-Down protocol "issue" PDU.

Definition at line 244 of file up_down.py.

3.150.2 Member Function Documentation

3.150.2.1 def rpki.up_down.issue_pdu.endElement (*self, stack, name, text*)

Handle "issue" PDU.

Reimplemented from [rpki.up_down.base_elt](#).

Definition at line 255 of file up_down.py.

3.150.2.2 def rpki.up_down.issue_pdu.query (*cls, parent, ca, ca_detail*)

Send an "issue" request to parent associated with ca.

Definition at line 325 of file up_down.py.

3.150.2.3 def rpki.up_down.issue_pdu.serve_pdu (*self, q_msg, r_msg, child*)

Serve one issue request PDU.

Reimplemented from [rpki.up_down.base_elt](#).

Reimplemented in [rootd.issue_pdu](#).

Definition at line 268 of file up_down.py.

3.150.2.4 def rpki.up_down.issue_pdu.startElement (*self*, *stack*, *name*, *attrs*)

Handle "issue" PDU.

Reimplemented from [rpki.up_down.base_elt](#).

Definition at line 247 of file up_down.py.

3.150.2.5 def rpki.up_down.issue_pdu.toXML (*self*)

Generate payload of "issue" PDU.

Definition at line 261 of file up_down.py.

3.150.3 Member Data Documentation**3.150.3.1 rpki.up_down.issue_pdu.class_name**

Definition at line 250 of file up_down.py.

3.150.3.2 rpki.up_down.issue_pdu.pkcs10

Definition at line 258 of file up_down.py.

3.150.3.3 rpki.up_down.issue_pdu.req_resource_set_as

Definition at line 251 of file up_down.py.

3.150.3.4 rpki.up_down.issue_pdu.req_resource_set_ipv4

Definition at line 252 of file up_down.py.

3.150.3.5 rpki.up_down.issue_pdu.req_resource_set_ipv6

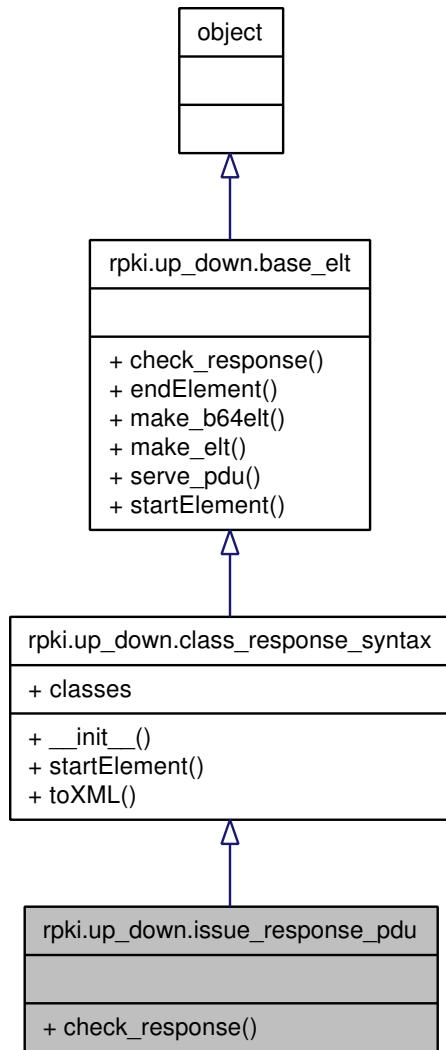
Definition at line 253 of file up_down.py.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.151 rpk.up_down.issue_response_pdu Class Reference

Inheritance diagram for rpk.up_down.issue_response_pdu:



Public Member Functions

- def `check_response`

3.151.1 Detailed Description

Up-Down protocol "issue_response" PDU.

Definition at line 335 of file up_down.py.

3.151.2 Member Function Documentation

3.151.2.1 def rpki.up_down.issue_response_pdu.check_response (*self*)

Check whether this looks like a reasonable issue_response PDU.
XML schema should be tighter for this response.

Reimplemented from [rpki.up_down.base_elt](#).

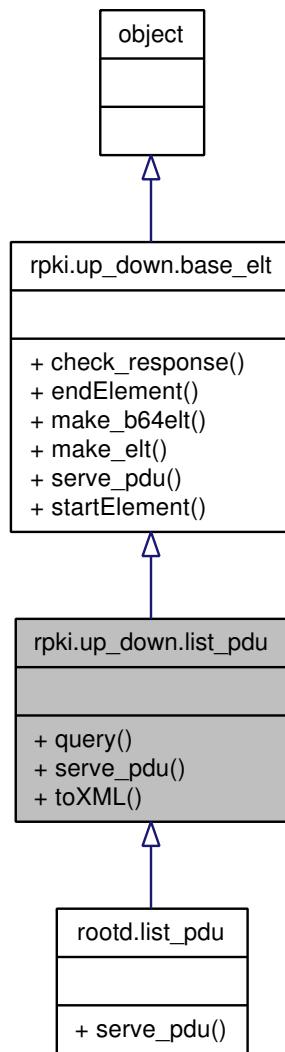
Definition at line 338 of file up_down.py.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.152 rpk.up_down.list_pdu Class Reference

Inheritance diagram for rpk.up_down.list_pdu:



Public Member Functions

- def [query](#)
- def [serve_pdu](#)
- def [toXML](#)

3.152.1 Detailed Description

Up-Down protocol "list" PDU.

Definition at line 181 of file up_down.py.

3.152.2 Member Function Documentation

3.152.2.1 def rpki.up_down.list_pdu.query (*cls, parent*)

Send a "list" query to parent.

Definition at line 216 of file up_down.py.

3.152.2.2 def rpki.up_down.list_pdu.serve_pdu (*self, q_msg, r_msg, child*)

Serve one "list" PDU.

Reimplemented from [rpki.up_down.base_elt](#).

Reimplemented in [rootd.list_pdu](#).

Definition at line 188 of file up_down.py.

3.152.2.3 def rpki.up_down.list_pdu.toXML (*self*)

Generate (empty) payload of "list" PDU.

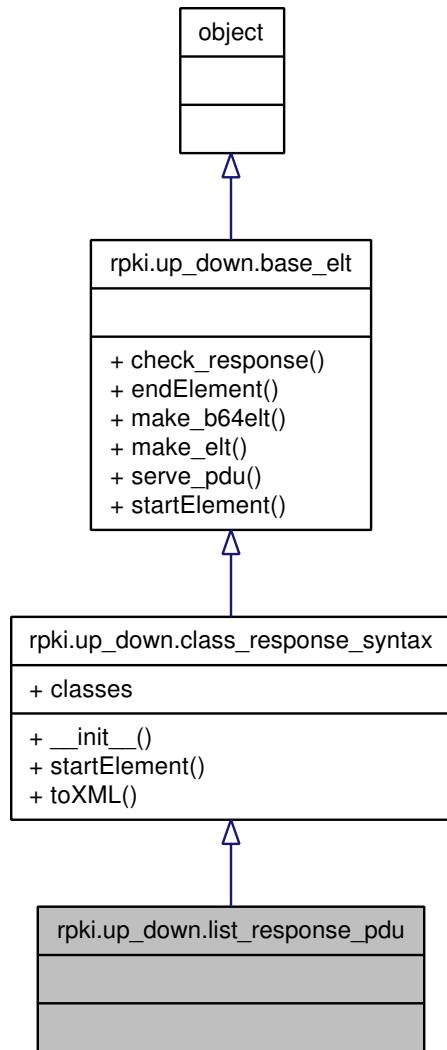
Definition at line 184 of file up_down.py.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.153 rpki.up_down.list_response_pdu Class Reference

Inheritance diagram for rpki.up_down.list_response_pdu:



3.153.1 Detailed Description

Up-Down protocol "list_response" PDU.

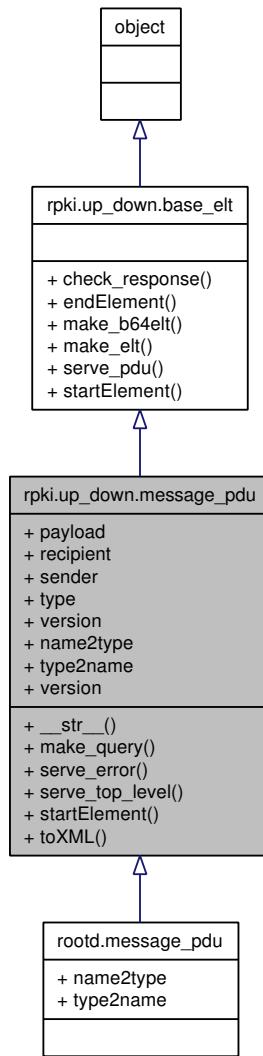
Definition at line 239 of file `up_down.py`.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.154 rpki.up_down.message_pdu Class Reference

Inheritance diagram for rpki.up_down.message_pdu:



Public Member Functions

- def `__str__`
- def `make_query`
- def `serve_error`
- def `serve_top_level`
- def `startElement`
- def `toXML`

Public Attributes

- `payload`
- `recipient`
- `sender`
- `type`
- `version`

Static Public Attributes

- dictionary `name2type`
- tuple `type2name` = dict((v,k) for k,v in name2type.items())
- int `version` = 1

3.154.1 Detailed Description

Up-Down protocol message wrapper PDU.

Definition at line 447 of file up_down.py.

3.154.2 Member Function Documentation

3.154.2.1 def rpki.up_down.message_pdu.__str__ (*self*)

Convert a message PDU to a string.

Definition at line 484 of file up_down.py.

3.154.2.2 def rpki.up_down.message_pdu.make_query (*cls, payload, sender, recipient*)

Construct one message PDU.

Definition at line 507 of file up_down.py.

3.154.2.3 def rpki.up_down.message_pdu.serve_error (self, exception)

Generate an error_response message PDU.

Definition at line 497 of file up_down.py.

3.154.2.4 def rpki.up_down.message_pdu.serve_top_level (self, child)

Serve one message request PDU.

Definition at line 488 of file up_down.py.

3.154.2.5 def rpki.up_down.message_pdu.startElement (self, stack, name, attrs)

Handle message PDU.

Payload of the <message/> element varies depending on the "type" attribute, so after some basic checks we have to instantiate the right class object to handle whatever kind of PDU this is.

Reimplemented from [rpki.up_down.base_elt](#).

Definition at line 469 of file up_down.py.

3.154.2.6 def rpki.up_down.message_pdu.toXML (self)

Generate payload of message PDU.

Definition at line 463 of file up_down.py.

3.154.3 Member Data Documentation**3.154.3.1 dictionary rpki.up_down.message_pdu.name2type [static]**

Initial value:

```
{  
    "list"          : list_pdu,  
    "list_response" : list_response_pdu,  
    "issue"         : issue_pdu,  
    "issue_response" : issue_response_pdu,  
    "revoke"        : revoke_pdu,  
    "revoke_response" : revoke_response_pdu,  
    "error_response" : error_response_pdu }
```

Reimplemented in [rootd.message_pdu](#).

Definition at line 452 of file up_down.py.

3.154.3.2 rpki.up_down.message_pdu.payload

Definition at line 481 of file up_down.py.

3.154.3.3 rpki.up_down.message_pdu.recipient

Definition at line 479 of file up_down.py.

3.154.3.4 rpki.up_down.message_pdu.sender

Definition at line 478 of file up_down.py.

3.154.3.5 rpki.up_down.message_pdu.type

Definition at line 480 of file up_down.py.

3.154.3.6 tuple rpki.up_down.message_pdu.type2name = dict((v,k) for k,v in name2type.items()) [static]

Reimplemented in [rootd.message_pdu](#).

Definition at line 461 of file up_down.py.

3.154.3.7 rpki.up_down.message_pdu.version

Definition at line 477 of file up_down.py.

3.154.3.8 int rpki.up_down.message_pdu.version = 1 [static]

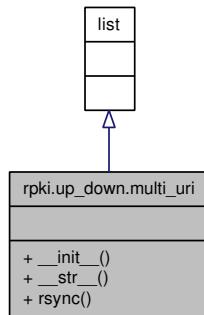
Definition at line 450 of file up_down.py.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.155 rpk.up_down.multi_uri Class Reference

Inheritance diagram for rpk.up_down.multi_uri:



Public Member Functions

- def `__init__`
- def `__str__`
- def `rsync`

3.155.1 Detailed Description

Container for a set of URIs.

Definition at line 73 of file up_down.py.

3.155.2 Member Function Documentation

3.155.2.1 def rpk.up_down.multi_uri.__init__ (*self*, *ini*)

Initialize a set of URIs, which includes basic some syntax checking.

Definition at line 76 of file up_down.py.

3.155.2.2 def rpk.up_down.multi_uri.__str__ (*self*)

Convert a multi_uri back to a string representation.

Definition at line 88 of file up_down.py.

3.155.2.3 def rpki.up_down.multi_uri.rsync (*self*)

Find first rsync://... URI in self.

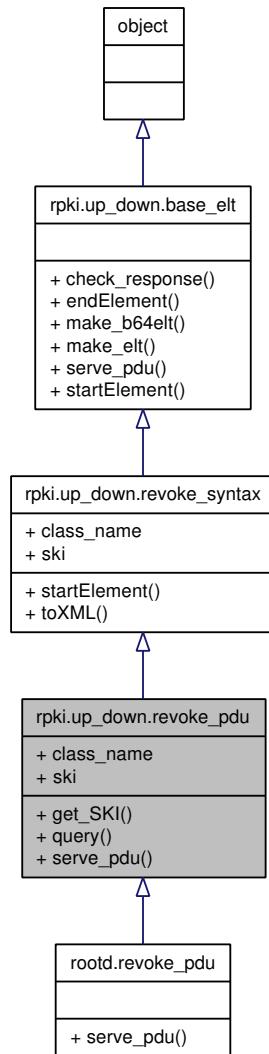
Definition at line 92 of file up_down.py.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.156 rpk.up_down.revoke_pdu Class Reference

Inheritance diagram for rpk.up_down.revoke_pdu:



Public Member Functions

- def [get_SKI](#)
- def [query](#)
- def [serve_pdu](#)

Public Attributes

- `class_name`
- `ski`

3.156.1 Detailed Description

Up-Down protocol "revocate" PDU.

Definition at line 357 of file up_down.py.

3.156.2 Member Function Documentation

3.156.2.1 def rpki.up_down.revocate_pdu.get_SKI (*self*)

Convert g(SKI) encoding from PDU back to raw SKI.

Definition at line 360 of file up_down.py.

3.156.2.2 def rpki.up_down.revocate_pdu.query (*cls, ca_detail*)

Send a "revocate" request to parent associated with `ca_detail`.

Definition at line 375 of file up_down.py.

3.156.2.3 def rpki.up_down.revocate_pdu.serve_pdu (*self, q_msg, r_msg, child*)

Serve one revoke request PDU.

Reimplemented from [rpki.up_down.base_elt](#).

Reimplemented in [rootd.revocate_pdu](#).

Definition at line 364 of file up_down.py.

3.156.3 Member Data Documentation

3.156.3.1 rpki.up_down.revocate_pdu.class_name

Reimplemented from [rpki.up_down.revocate_syntax](#).

Definition at line 380 of file up_down.py.

3.156.3.2 rpki.up_down.revocate_pdu.ski

Reimplemented from [rpki.up_down.revocate_syntax](#).

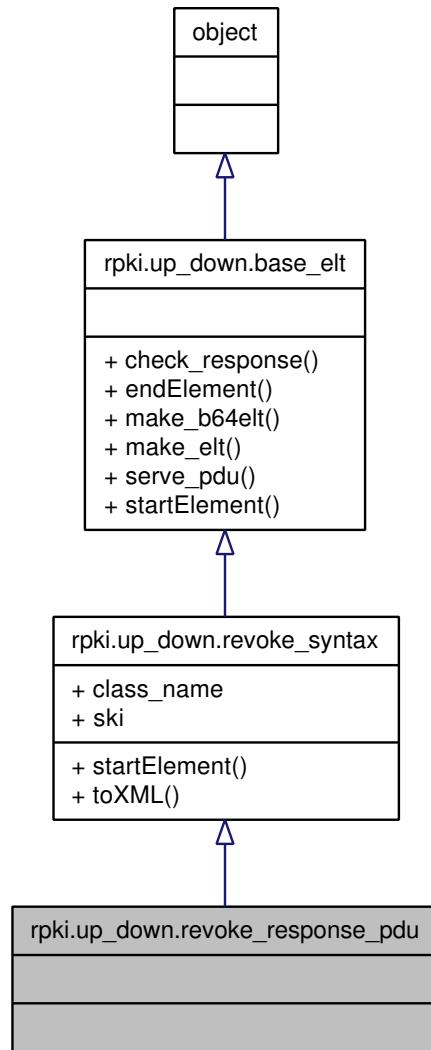
Definition at line 381 of file [up_down.py](#).

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.157 rpk.up_down.revoke_response_pdu Class Reference

Inheritance diagram for rpk.up_down.revoke_response_pdu:



3.157.1 Detailed Description

Up-Down protocol "revoke_response" PDU.

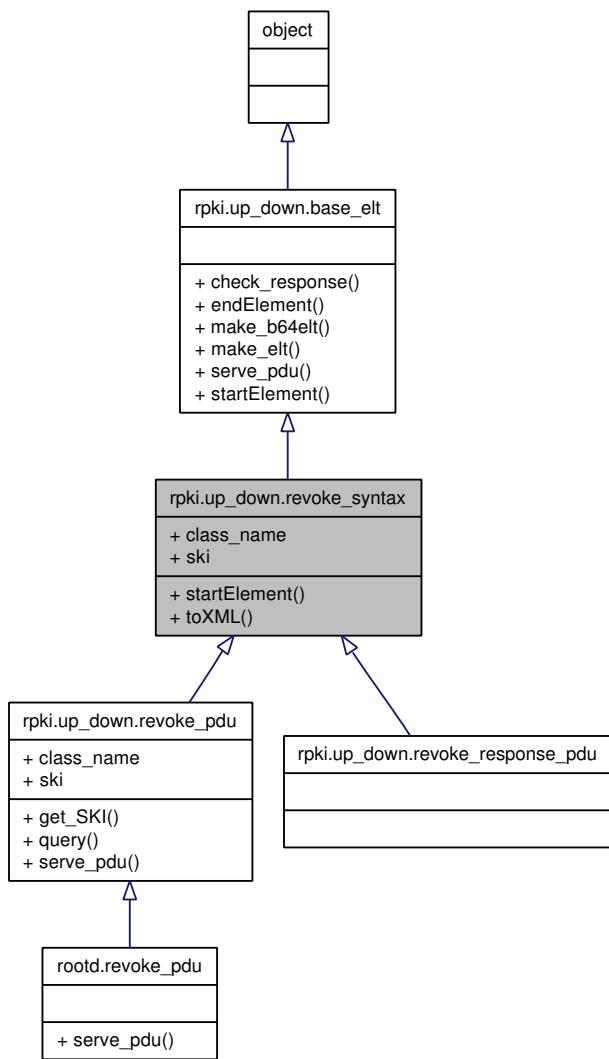
Definition at line 384 of file up_down.py.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.158 rpki.up_down.revoke_syntax Class Reference

Inheritance diagram for rpki.up_down.revoke_syntax:



Public Member Functions

- def [startElement](#)
- def [toXML](#)

Public Attributes

- [class_name](#)
- [ski](#)

3.158.1 Detailed Description

Syntax for Up-Down protocol "revocate" and "revocate_response" PDUs.

Definition at line 345 of file up_down.py.

3.158.2 Member Function Documentation

3.158.2.1 def rpki.up_down.revocate_syntax.startElement (*self*, *stack*, *name*, *attrs*)

Handle "revocate" PDU.

Reimplemented from [rpki.up_down.base_elt](#).

Definition at line 348 of file up_down.py.

3.158.2.2 def rpki.up_down.revocate_syntax.toXML (*self*)

Generate payload of "revocate" PDU.

Definition at line 353 of file up_down.py.

3.158.3 Member Data Documentation

3.158.3.1 rpki.up_down.revocate_syntax.class_name

Reimplemented in [rpki.up_down.revocate_pdu](#).

Definition at line 350 of file up_down.py.

3.158.3.2 rpki.up_down.revocate_syntax.ski

Reimplemented in [rpki.up_down.revocate_pdu](#).

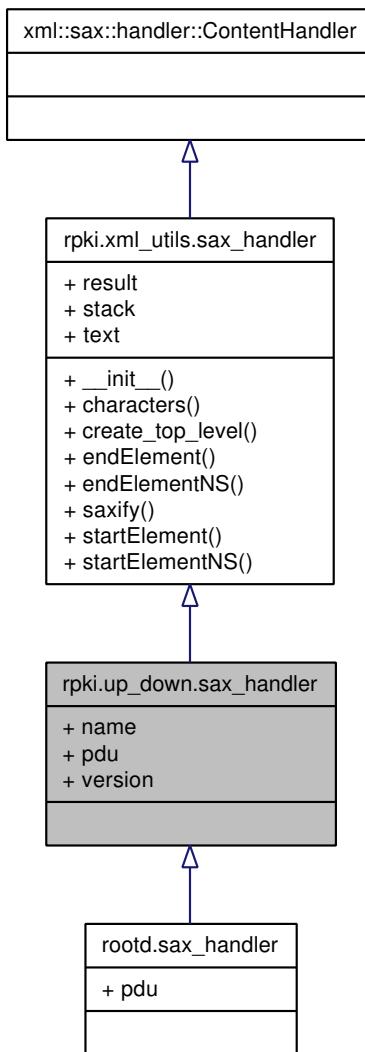
Definition at line 351 of file [up_down.py](#).

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.159 rpki.up_down.sax_handler Class Reference

Inheritance diagram for rpki.up_down.sax_handler:



Static Public Attributes

- string name = "message"
 - pdu = message_pdu
 - string version = "1"

3.159.1 Detailed Description

SAX handler for Up-Down protocol.

Definition at line 521 of file up_down.py.

3.159.2 Member Data Documentation

3.159.2.1 string rpki.up_down.sax_handler.name = "message" [static]

Definition at line 525 of file up_down.py.

3.159.2.2 rpki.up_down.sax_handler.pdu = message_pdu [static]

Reimplemented in [rootd.sax_handler](#).

Definition at line 524 of file up_down.py.

3.159.2.3 string rpki.up_down.sax_handler.version = "1" [static]

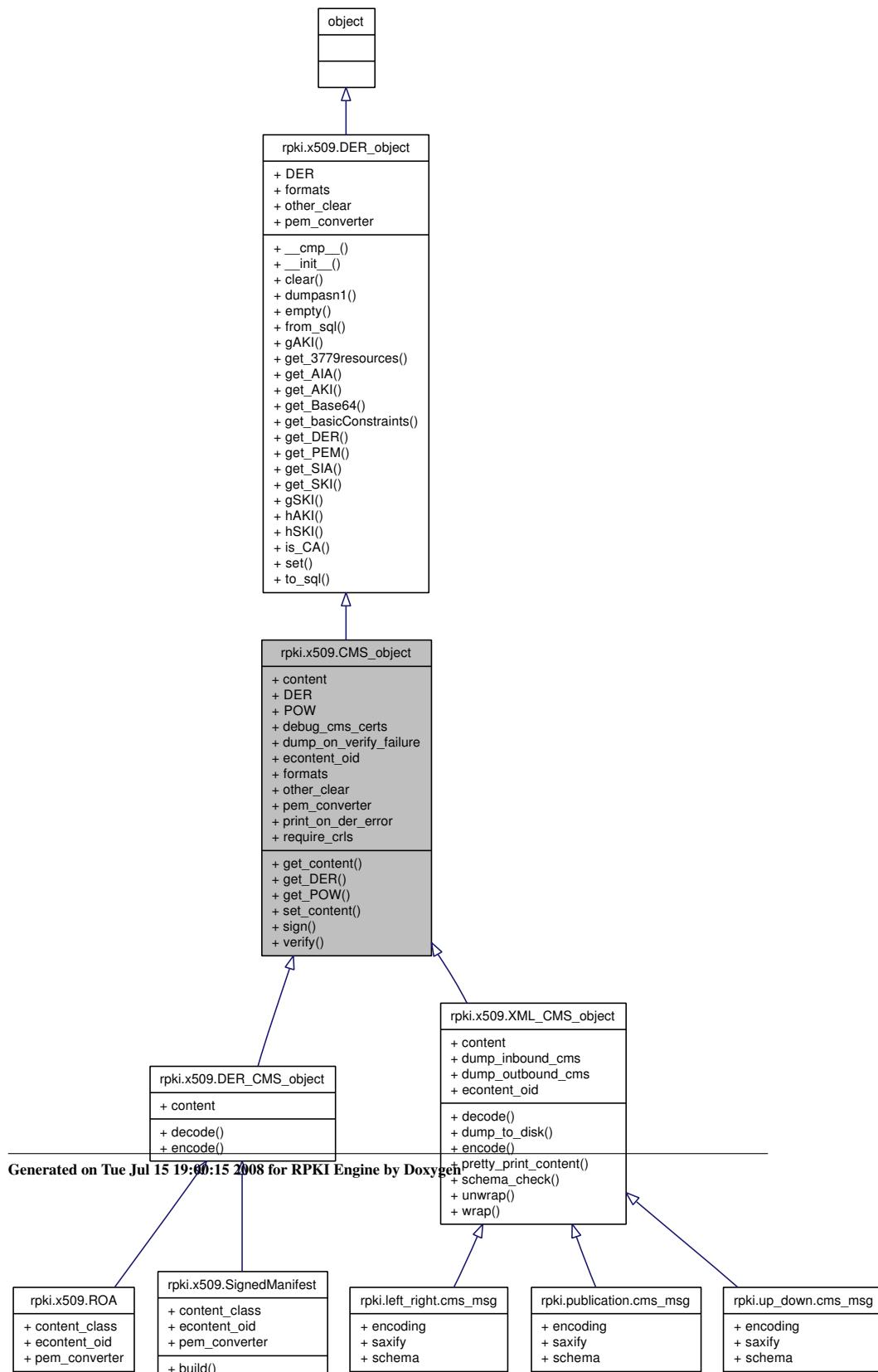
Definition at line 526 of file up_down.py.

The documentation for this class was generated from the following file:

- [up_down.py \(1873\)](#)

3.160 rpkix509.CMS_object Class Reference

Inheritance diagram for rpkix509.CMS_object:



Generated on Tue Jul 15 19:00:15 2008 for RPKI Engine by Doxygen

Public Member Functions

- def [get_content](#)
- def [get_DER](#)
- def [get_POW](#)
- def [set_content](#)
- def [sign](#)
- def [verify](#)

Public Attributes

- [content](#)
- [DER](#)

DER value of this [object](#).
- [POW](#)

Static Public Attributes

- [debug_cms_certs](#) = False

Set this to True to [log](#) a lot of chatter about CMS certificates.
- [dump_on_verify_failure](#) = True

Set this to True to get dumpasn1 dumps of ASN.1 on CMS verify failures.
- tuple [econtent_oid](#) = POWify_OID("id-data")
• tuple [formats](#) = ("DER", "POW")

Formats supported in this [object](#).
- tuple [other_clear](#) = ("content",)
Other attributes that self.clear() should whack.
- tuple [pem_converter](#) = PEM_converter("CMS")
PEM converter for this [object](#).
- [print_on_der_error](#) = True
Set this to True to [log](#) alleged DER when we have trouble parsing it, in case it's really a Perl backtrace or something.
- [require_crls](#) = False
Set this to False to make CMS CRLs optional in the cases where we would otherwise require them.

3.160.1 Detailed Description

Class to hold a CMS-wrapped object.

CMS-wrapped objects are a little different from the other DER_object types because the signed object is CMS wrapping inner content that's also ASN.1, and due to our current minimal support for CMS we can't just handle this as a pretty composite object. So, for now anyway, a CMS_object is the outer CMS wrapped object so that the usual DER and PEM operations do the obvious things, and the inner content is handled via separate methods.

Definition at line 583 of file x509.py.

3.160.2 Member Function Documentation

3.160.2.1 def rpki.x509.CMS_object.get_content (*self*)

Get the inner content of this CMS_object.

Definition at line 640 of file x509.py.

3.160.2.2 def rpki.x509.CMS_object.get_DER (*self*)

Get the DER value of this CMS_object.

Reimplemented from [rpki.x509.DER_object](#).

Definition at line 623 of file x509.py.

3.160.2.3 def rpki.x509.CMS_object.get_POW (*self*)

Get the POW value of this CMS_object.

Definition at line 633 of file x509.py.

3.160.2.4 def rpki.x509.CMS_object.set_content (*self, content*)

Set the (inner) content of this CMS_object, clearing the wrapper.

Definition at line 645 of file x509.py.

3.160.2.5 def rpki.x509.CMS_object.sign (self, keypair, certs, crls = None, no_certs = False)

Sign and wrap inner content.

Definition at line 719 of file x509.py.

3.160.2.6 def rpki.x509.CMS_object.verify (self, ta)

Verify CMS wrapper and store inner content.

Definition at line 650 of file x509.py.

3.160.3 Member Data Documentation**3.160.3.1 rpki.x509.CMS_object.content**

Reimplemented in [rpki.x509.DER_CMS_object](#), and [rpki.x509.XML_CMS_object](#).

Definition at line 648 of file x509.py.

3.160.3.2 rpki::x509.CMS_object::debug_cms_certs = False [static]

Set this to True to [log](#) a lot of chatter about CMS certificates.

Definition at line 608 of file x509.py.

3.160.3.3 rpki.x509.CMS_object.DER

DER value of this [object](#).

Reimplemented from [rpki.x509.DER_object](#).

Definition at line 629 of file x509.py.

3.160.3.4 rpki::x509.CMS_object::dump_on_verify_failure = True [static]

Set this to True to get dumpasn1 dumps of ASN.1 on CMS verify failures.

Definition at line 603 of file x509.py.

3.160.3.5 tuple rpki.x509.CMS_object.econtent_oid = POWify_OID("id-data") [static]

Reimplemented in [rpki.x509.SignedManifest](#), [rpki.x509.ROA](#), and [rpki.x509.XML_CMS_object](#).

Definition at line 597 of file x509.py.

3.160.3.6 tuple rpkix509.CMS_object.formats = ("DER", "POW") [static]

Formats supported in this [object](#).

Reimplemented from [rpkix509.DER_object](#).

Definition at line 595 of file x509.py.

3.160.3.7 tuple rpkix509.CMS_object.other_clear = ("content",) [static]

Other attributes that self.clear() should whack.

Reimplemented from [rpkix509.DER_object](#).

Definition at line 596 of file x509.py.

3.160.3.8 tuple rpkix509.CMS_object.pem_converter = PEM_converter("CMS") [static]

PEM converter for this [object](#).

Reimplemented from [rpkix509.DER_object](#).

Reimplemented in [rpkix509.SignedManifest](#), and [rpkix509.ROA](#).

Definition at line 598 of file x509.py.

3.160.3.9 rpkix509.CMS_object.POW

Definition at line 637 of file x509.py.

3.160.3.10 rpkix509.CMS_object::print_on_der_error = True [static]

Set this to True to [log](#) alleged DER when we have trouble parsing it, in case it's really a Perl backtrace or something.

Definition at line 621 of file x509.py.

3.160.3.11 rpkix509.CMS_object::require_crls = False [static]

Set this to False to make CMS CRLs optional in the cases where we would otherwise require them.

Some day this option should go away and CRLs should be unconditionally mandatory in such cases.

Definition at line 615 of file x509.py.

The documentation for this class was generated from the following file:

- [x509.py \(1916\)](#)

3.161 rpki.x509.CRL Class Reference

Inheritance diagram for rpki.x509.CRL:



Public Member Functions

- def [generate](#)
- def [get_DER](#)
- def [get_POW](#)
- def [get_POWpkix](#)
- def [getIssuer](#)
- def [getNextUpdate](#)
- def [getThisUpdate](#)

Public Attributes

- [DER](#)

DER value of this object.

- [POW](#)
- [POWpkix](#)

Static Public Attributes

- tuple [formats = \("DER", "POW", "POWpkix"\)](#)

Formats supported in this object.

- tuple [pem_converter = PEM_converter\("X509 CRL"\)](#)

PEM converter for this object.

3.161.1 Detailed Description

Class to hold a Certificate Revocation List.

Definition at line 890 of file x509.py.

3.161.2 Member Function Documentation

3.161.2.1 def rpki.x509.CRL.generate (*cls*, *keypair*, *issuer*, *serial*, *thisUpdate*, *nextUpdate*, *revokedCertificates*, *version* = 1, *digestType* = "sha256WithRSAEncryption")

Definition at line 938 of file x509.py.

3.161.2.2 def rpki.x509.CRL.get_DER (*self*)

Get the DER value of this CRL.

Reimplemented from [rpki.x509.DER_object](#).

Definition at line 896 of file x509.py.

3.161.2.3 def rpki.x509.CRL.get_POW (*self*)

Get the POW value of this CRL.

Definition at line 909 of file x509.py.

3.161.2.4 def rpki.x509.CRL.get_POWpkix (*self*)

Get the POW.pkix value of this CRL.

Definition at line 916 of file x509.py.

3.161.2.5 def rpki.x509.CRL.getIssuer (*self*)

Get issuer value of this CRL.

Definition at line 933 of file x509.py.

3.161.2.6 def rpki.x509.CRL.getNextUpdate (*self*)

Get nextUpdate value from this CRL.

Definition at line 929 of file x509.py.

3.161.2.7 def rpki.x509.CRL.getThisUpdate (*self*)

Get thisUpdate value from this CRL.

Definition at line 925 of file x509.py.

3.161.3 Member Data Documentation

3.161.3.1 rpkix509.CRL.DER

DER value of this [object](#).

Reimplemented from [rpkix509.DER_object](#).

Definition at line 902 of file x509.py.

3.161.3.2 tuple rpkix509.CRL.formats = ("DER", "POW", "POWpkix") [static]

Formats supported in this [object](#).

Reimplemented from [rpkix509.DER_object](#).

Definition at line 893 of file x509.py.

3.161.3.3 tuple rpkix509.CRL.pem_converter = PEM_converter("X509 CRL") [static]

PEM converter for this [object](#).

Reimplemented from [rpkix509.DER_object](#).

Definition at line 894 of file x509.py.

3.161.3.4 rpkix509.CRL.POW

Definition at line 913 of file x509.py.

3.161.3.5 rpkix509.CRL.POWPkix

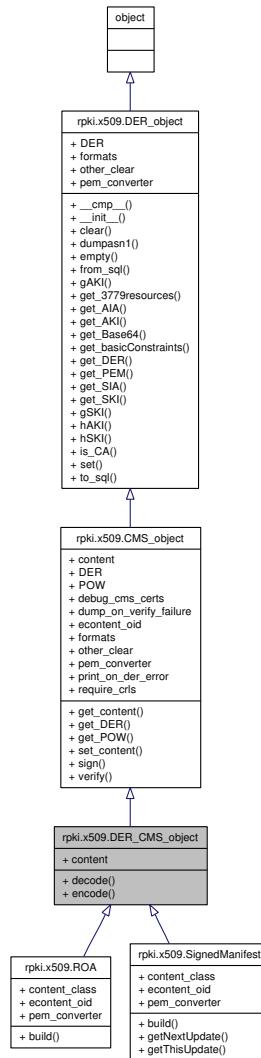
Definition at line 922 of file x509.py.

The documentation for this class was generated from the following file:

- [x509.py \(1916\)](#)

3.162 rpki.x509.DER_CMS_object Class Reference

Inheritance diagram for rpki.x509.DER_CMS_object:



Public Member Functions

- def [decode](#)
- def [encode](#)

Public Attributes

- [content](#)

3.162.1 Detailed Description

Class to hold CMS objects with DER-based content.

Definition at line 748 of file x509.py.

3.162.2 Member Function Documentation

3.162.2.1 def rpkix509.DER_CMS_object.decode (*self*, *der*)

Decode DER and set inner content.

Definition at line 755 of file x509.py.

3.162.2.2 def rpkix509.DER_CMS_object.encode (*self*)

Encode inner content for signing.

Definition at line 751 of file x509.py.

3.162.3 Member Data Documentation

3.162.3.1 rpkix509.DER_CMS_object.content

Reimplemented from [rpkix509.CMS_object](#).

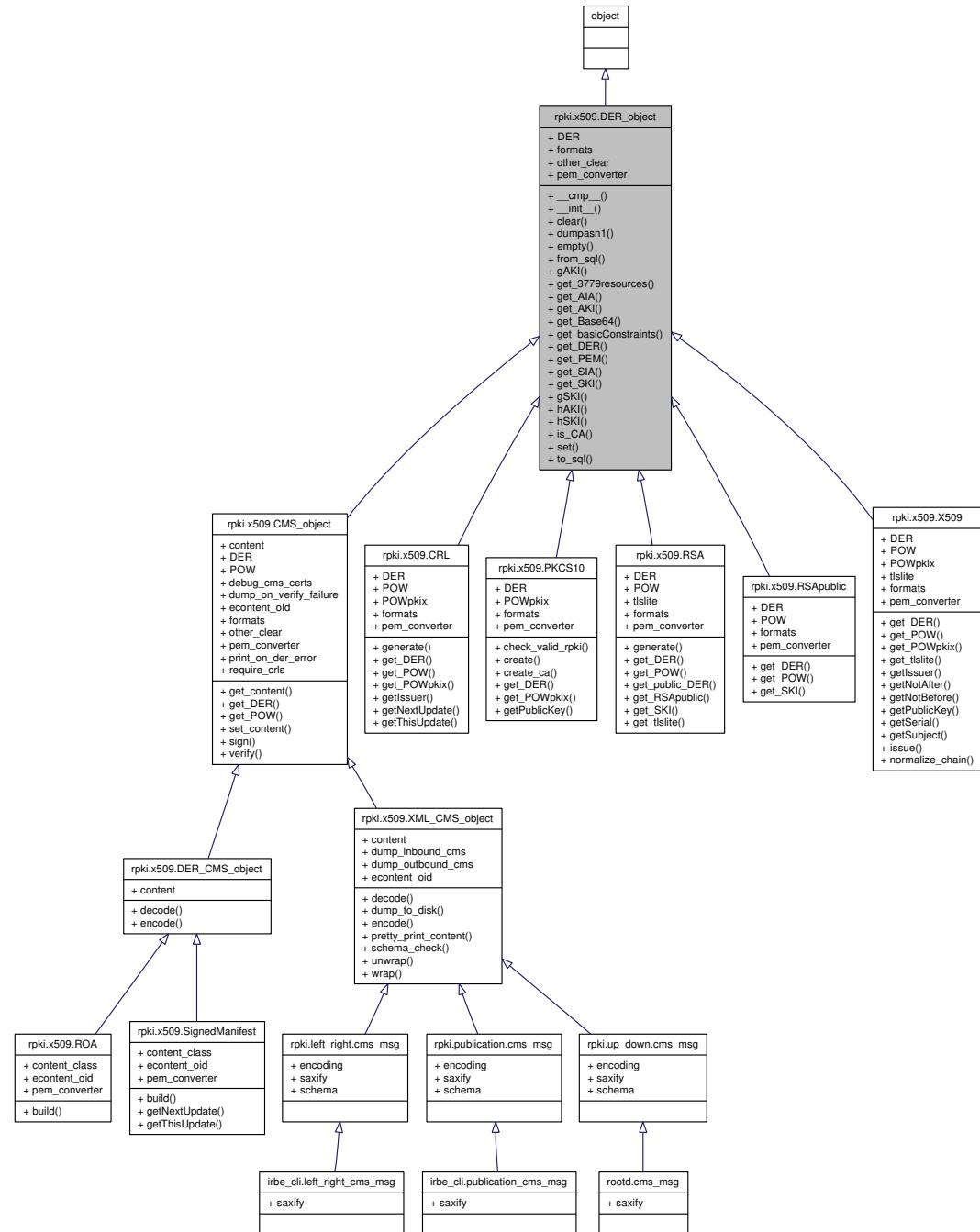
Definition at line 759 of file x509.py.

The documentation for this class was generated from the following file:

- [x509.py \(1916\)](#)

3.163 rpkix509.DER_object Class Reference

Inheritance diagram for rpkix509.DER_object:



Public Member Functions

- def [__cmp__](#)
- def [__init__](#)
- def [clear](#)
- def [dumpasn1](#)
- def [empty](#)
- def [from_sql](#)
- def [gAKI](#)
- def [get_3779resources](#)
- def [get_AIA](#)
- def [get_AKI](#)
- def [get_Base64](#)
- def [get_basicConstraints](#)
- def [get_DER](#)
- def [get_PEM](#)
- def [get_SIA](#)
- def [get_SKI](#)
- def [gSKI](#)
- def [hAKI](#)
- def [hSKI](#)
- def [is_CA](#)
- def [set](#)
- def [to_sql](#)

Public Attributes

- [DER](#)

DER value of this [object](#).

Static Public Attributes

- tuple [formats](#) = ("DER",)

Formats supported in this [object](#).

- tuple [other_clear](#) = ()

Other attributes that `self.clear()` should whack.

- [pem_converter](#) = None

PEM converter for this [object](#).

3.163.1 Detailed Description

Virtual class to hold a generic DER object.

Definition at line 76 of file x509.py.

3.163.2 Member Function Documentation

3.163.2.1 def rpkix509.DER_object.__cmp__ (*self, other*)

Compare two DER-encoded objects.

Definition at line 160 of file x509.py.

3.163.2.2 def rpkix509.DER_object.__init__ (*self, kw*)

Initialize a DER_object.

Definition at line 103 of file x509.py.

3.163.2.3 def rpkix509.DER_object.clear (*self*)

Make this object empty.

Definition at line 98 of file x509.py.

3.163.2.4 def rpkix509.DER_object.dumpasn1 (*self*)

Pretty print an ASN.1 DER object using cryptlib dumpasn1 tool.
Use a temporary file rather than popen4() because dumpasn1 uses
seek() when decoding ASN.1 content nested in OCTET STRING values.

Definition at line 236 of file x509.py.

3.163.2.5 def rpkix509.DER_object.empty (*self*)

Test whether this object is empty.

Definition at line 91 of file x509.py.

3.163.2.6 def rpki.x509.DER_object.from_sql (*cls*, *x*)

Convert from SQL storage format.

Definition at line 228 of file x509.py.

3.163.2.7 def rpki.x509.DER_object.gAKI (*self*)

Calculate g(AKI) for this object. Only work for subclasses that implement get_AKI().

Definition at line 184 of file x509.py.

3.163.2.8 def rpki.x509.DER_object.get_3779resources (*self*)

Get RFC 3779 resources as rpki.resource_set objects.
Only works for subclasses that support getExtensions().

Definition at line 216 of file x509.py.

3.163.2.9 def rpki.x509.DER_object.get_AIA (*self*)

Get the SIA extension from this object. Only works for subclasses that support getExtension().

Definition at line 203 of file x509.py.

3.163.2.10 def rpki.x509.DER_object.get_AKI (*self*)

Get the AKI extension from this object. Only works for subclasses that support getExtension().

Definition at line 190 of file x509.py.

3.163.2.11 def rpki.x509.DER_object.get_Base64 (*self*)

Get the Base64 encoding of the DER value of this object.

Definition at line 152 of file x509.py.

3.163.2.12 def rpki.x509.DER_object.get_basicConstraints (*self*)

Get the basicConstraints extension from this object. Only works for subclasses that support getExtension().

Definition at line 207 of file x509.py.

3.163.2.13 def rpki.x509.DER_object.get_DER (*self*)

Get the DER value of this object.

Subclasses will almost certainly override this method.

Reimplemented in [rpki.x509.X509](#), [rpki.x509.PKCS10](#), [rpki.x509.RSA](#), [rpki.x509.RSAPublic](#), [rpki.x509.CMS_object](#), and [rpki.x509.CRL](#).

Definition at line 142 of file x509.py.

3.163.2.14 def rpki.x509.DER_object.get_PEM (*self*)

Get the PEM representation of this object.

Definition at line 156 of file x509.py.

3.163.2.15 def rpki.x509.DER_object.get_SIA (*self*)

Get the SIA extension from this object. Only works for subclasses that support `getExtension()`.

Definition at line 199 of file x509.py.

3.163.2.16 def rpki.x509.DER_object.get_SKI (*self*)

Get the SKI extension from this object. Only works for subclasses that support `getExtension()`.

Reimplemented in [rpki.x509.RSA](#), and [rpki.x509.RSAPublic](#).

Definition at line 195 of file x509.py.

3.163.2.17 def rpki.x509.DER_object.gSKI (*self*)

Calculate g(SKI) for this object. Only work for subclasses that implement `get_SKI()`.

Definition at line 171 of file x509.py.

3.163.2.18 def rpki.x509.DER_object.hAKI (*self*)

Return hexadecimal string representation of AKI for this object. Only work for subclasses that implement `get_AKI()`.

Definition at line 177 of file x509.py.

3.163.2.19 def rpki.x509.DER_object.hSKI (*self*)

Return hexadecimal string representation of SKI for this object. Only work for subclasses that implement get_SKI().

Definition at line 164 of file x509.py.

3.163.2.20 def rpki.x509.DER_object.is_CA (*self*)

Return True if and only if object has the basicConstraints extension and its cA value is true.

Definition at line 211 of file x509.py.

3.163.2.21 def rpki.x509.DER_object.set (*self, kw*)

Set this object by setting one of its known formats.

This method only allows one to set one format at a time. Subsequent calls will clear the object first. The point of all this is to let the object's internal converters handle mustering the object into whatever format you need at the moment.

Definition at line 109 of file x509.py.

3.163.2.22 def rpki.x509.DER_object.to_sql (*self*)

Convert to SQL storage format.

Definition at line 232 of file x509.py.

3.163.3 Member Data Documentation**3.163.3.1 rpki::x509.DER_object::DER**

DER value of this [object](#).

Reimplemented in [rpki.x509.X509](#), [rpki.x509.PKCS10](#), [rpki.x509.RSA](#), [rpki.x509.RSAPublic](#), [rpki.x509.CMS_object](#), and [rpki.x509.CRL](#).

Definition at line 125 of file x509.py.

3.163.3.2 tuple rpki.x509.DER_object.formats = ("DER",) [static]

Formats supported in this [object](#).

Reimplemented in [rpki.x509.X509](#), [rpki.x509.PKCS10](#), [rpki.x509.RSA](#), [rpki.x509.RSAPublic](#), [rpki.x509.CMS_object](#), and [rpki.x509.CRL](#).

Definition at line 80 of file x509.py.

3.163.3.3 tuple rpki.x509.DER_object.other_clear = () [static]

Other attributes that self.clear() should whack.

Reimplemented in [rpki.x509.CMS_object](#).

Definition at line 86 of file x509.py.

3.163.3.4 rpki.x509.DER_object.pem_converter = None [static]

PEM converter for this [object](#).

Reimplemented in [rpki.x509.X509](#), [rpki.x509.PKCS10](#), [rpki.x509.RSA](#), [rpki.x509.RSAPublic](#), [rpki.x509.CMS_object](#), [rpki.x509.SignedManifest](#), [rpki.x509.ROA](#), and [rpki.x509.CRL](#).

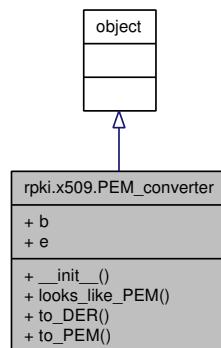
Definition at line 83 of file x509.py.

The documentation for this class was generated from the following file:

- [x509.py \(1916\)](#)

3.164 rpki.x509.PEM_converter Class Reference

Inheritance diagram for rpki.x509.PEM_converter:



Public Member Functions

- def [__init__](#)
- def [looks_like_PEM](#)
- def [to_DER](#)
- def [to_PEM](#)

Public Attributes

- [b](#)
- [e](#)

3.164.1 Detailed Description

Convert between DER and PEM encodings for various kinds of ASN.1 data.

Definition at line 43 of file x509.py.

3.164.2 Member Function Documentation

3.164.2.1 def rpkix509.PEM_converter.__init__ (*self*, *kind*)

Initialize PEM_converter.

Definition at line 46 of file x509.py.

3.164.2.2 def rpkix509.PEM_converter.looks_like_PEM (*self*, *text*)

Guess whether text looks like a PEM encoding.

Definition at line 51 of file x509.py.

3.164.2.3 def rpkix509.PEM_converter.to_DER (*self*, *pem*)

Convert from PEM to DER.

Definition at line 56 of file x509.py.

3.164.2.4 def rpkix509.PEM_converter.to_PEM (*self*, *der*)

Convert from DER to PEM.

Definition at line 67 of file x509.py.

3.164.3 Member Data Documentation

3.164.3.1 rpki.x509.PEM_converter.b

Definition at line 48 of file x509.py.

3.164.3.2 rpki.x509.PEM_converter.e

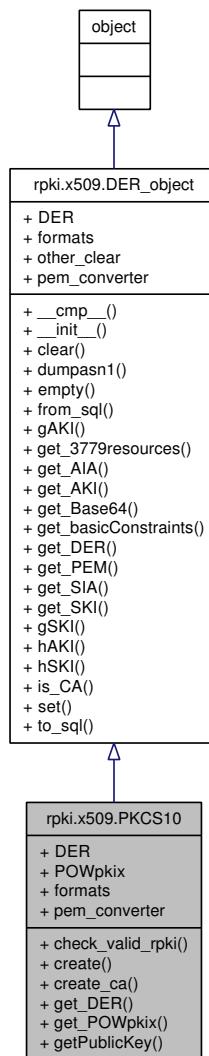
Definition at line 49 of file x509.py.

The documentation for this class was generated from the following file:

- [x509.py \(1916\)](#)

3.165 rpkix509.PKCS10 Class Reference

Inheritance diagram for rpki.x509.PKCS10:



Public Member Functions

- def `check_valid_rpki`
 - def `create`
 - def `create_ca`
 - def `get_DER`

- def `get_POWpkix`
- def `getPublicKey`

Public Attributes

- `DER`
DER value of this `object`.
- `POWpkix`

Static Public Attributes

- tuple `formats = ("DER", "POWpkix")`
Formats supported in this `object`.
- tuple `pem_converter = PEM_converter("CERTIFICATE REQUEST")`
PEM converter for this `object`.

3.165.1 Detailed Description

Class to hold a PKCS #10 request.

Definition at line 402 of file x509.py.

3.165.2 Member Function Documentation

3.165.2.1 def rpki.x509.PKCS10.check_valid_rpki (*self*)

Check this certification request to see whether it's a valid request for an RPKI certificate. This is broken out of the up-down protocol code because it's somewhat involved and the up-down code doesn't need to know the details.

Throws an exception if the request isn't valid, so if this method returns at all, the request is ok.

Definition at line 431 of file x509.py.

3.165.2.2 def rpki.x509.PKCS10.create (*cls, keypair, exts = None*)

Create a new request for a given keypair, including given extensions.

Definition at line 488 of file x509.py.

3.165.2.3 def rpki.x509.PKCS10.create_ca (*cls*, *keypair*, *sia* = None)

Create a new request for a given keypair, including given SIA value.

Definition at line 477 of file x509.py.

3.165.2.4 def rpki.x509.PKCS10.get_DER (*self*)

Get the DER value of this certification request.

Reimplemented from [rpki.x509.DER_object](#).

Definition at line 408 of file x509.py.

3.165.2.5 def rpki.x509.PKCS10.get_POWpkix (*self*)

Get the POW.pkix value of this certification request.

Definition at line 418 of file x509.py.

3.165.2.6 def rpki.x509.PKCS10.getPublicKey (*self*)

Extract the public key from this certification request.

Definition at line 427 of file x509.py.

3.165.3 Member Data Documentation**3.165.3.1 rpki.x509.PKCS10.DER**

DER value of this [object](#).

Reimplemented from [rpki.x509.DER_object](#).

Definition at line 414 of file x509.py.

3.165.3.2 tuple rpki.x509.PKCS10.formats = ("DER", "POWpkix") [static]

Formats supported in this [object](#).

Reimplemented from [rpki.x509.DER_object](#).

Definition at line 405 of file x509.py.

**3.165.3.3 tuple rpki.x509.PKCS10.pem_converter = PEM_-
converter("CERTIFICATE REQUEST") [static]**

PEM converter for this [object](#).

Reimplemented from [rpki.x509.DER_object](#).

Definition at line 406 of file x509.py.

3.165.3.4 rpki.x509.PKCS10.PO Wpkix

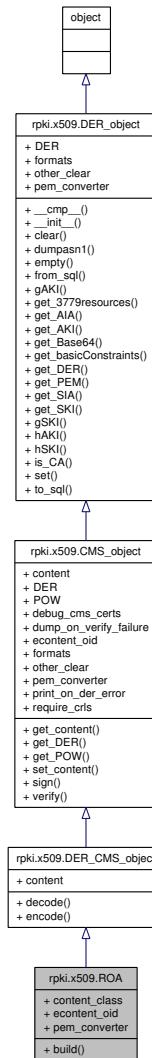
Definition at line 424 of file x509.py.

The documentation for this class was generated from the following file:

- [x509.py \(1916\)](#)

3.166 rpkix509.ROA Class Reference

Inheritance diagram for rpkix509.ROA:



Public Member Functions

- def [build](#)

Static Public Attributes

- `content_class = rpkiroa.RouteOriginAttestation`
- tuple `econtent_oid = POWify_OID("id-ct-routeOriginAttestation")`
- tuple `pem_converter = PEM_converter("ROUTE ORIGIN ATTESTATION")`
PEM converter for this object.

3.166.1 Detailed Description

Class to hold a signed ROA.

Definition at line 797 of file x509.py.

3.166.2 Member Function Documentation

3.166.2.1 def rpkix509.ROA.build (*cls*, *as_number*, *ipv4*, *ipv6*, *keypair*, *certs*, *version* = 0)

Build a ROA.

Definition at line 805 of file x509.py.

3.166.3 Member Data Documentation

3.166.3.1 rpkix509.ROA.content_class = rpkiroa.RouteOriginAttestation [static]

Definition at line 801 of file x509.py.

3.166.3.2 tuple rpkix509.ROA.econtent_oid = POWify_OID("id-ct-routeOriginAttestation") [static]

Reimplemented from [rpkix509.CMS_object](#).

Definition at line 802 of file x509.py.

3.166.3.3 tuple rpkix509.ROA.pem_converter = PEM_converter("ROUTE ORIGIN ATTESTATION") [static]

PEM converter for this [object](#).

Reimplemented from [rpkix509.CMS_object](#).

Definition at line 800 of file x509.py.

The documentation for this class was generated from the following file:

- [x509.py \(1916\)](#)

3.167 rpkix509.RSA Class Reference

Inheritance diagram for rpkix509.RSA:



Public Member Functions

- def [generate](#)
- def [get_DER](#)
- def [get_POW](#)
- def [get_public_DER](#)
- def [get_RSAPublic](#)
- def [get_SKI](#)
- def [get_tslite](#)

Public Attributes

- [DER](#)
DER value of this object.
- [POW](#)
- [tselite](#)

Static Public Attributes

- tuple [formats = \("DER", "POW", "tselite"\)](#)
Formats supported in this object.
- tuple [pem_converter = PEM_converter\("RSA PRIVATE KEY"\)](#)
PEM converter for this object.

3.167.1 Detailed Description

Class to hold an RSA key pair.

Definition at line 500 of file x509.py.

3.167.2 Member Function Documentation

3.167.2.1 def rpki.x509.RSA.generate (*cls*, *keylength* = 2048)

Generate a new keypair.

Definition at line 531 of file x509.py.

3.167.2.2 def rpki.x509.RSA.get_DER (*self*)

Get the DER value of this keypair.

Reimplemented from [rpki.x509.DER_object](#).

Definition at line 506 of file x509.py.

3.167.2.3 def rpki.x509.RSA.get_POW (*self*)

Get the POW value of this keypair.

Definition at line 516 of file x509.py.

3.167.2.4 def rpki.x509.RSA.get_public_DER (*self*)

Get the DER encoding of the public key from this keypair.

Definition at line 535 of file x509.py.

3.167.2.5 def rpki.x509.RSA.get_RSAPublic (*self*)

Convert the public key of this keypair into a RSAPublic object.

Definition at line 543 of file x509.py.

3.167.2.6 def rpki.x509.RSA.get_SKI (*self*)

Calculate the SKI of this keypair.

Reimplemented from [rpki.x509.DER_object](#).

Definition at line 539 of file x509.py.

3.167.2.7 def rpki.x509.RSA.get_tslite (*self*)

Get the tslite value of this keypair.

Definition at line 523 of file x509.py.

3.167.3 Member Data Documentation

3.167.3.1 rpkix509.RSA.DER

DER value of this [object](#).

Reimplemented from [rpkix509.DER_object](#).

Definition at line 512 of file x509.py.

3.167.3.2 tuple rpkix509.RSA.formats = ("DER", "POW", "tlslite") [static]

Formats supported in this [object](#).

Reimplemented from [rpkix509.DER_object](#).

Definition at line 503 of file x509.py.

3.167.3.3 tuple rpkix509.RSA.pem_converter = PEM_converter("RSA PRIVATE KEY") [static]

PEM converter for this [object](#).

Reimplemented from [rpkix509.DER_object](#).

Definition at line 504 of file x509.py.

3.167.3.4 rpkix509.RSA.POW

Definition at line 520 of file x509.py.

3.167.3.5 rpkix509.RSA.tlslite

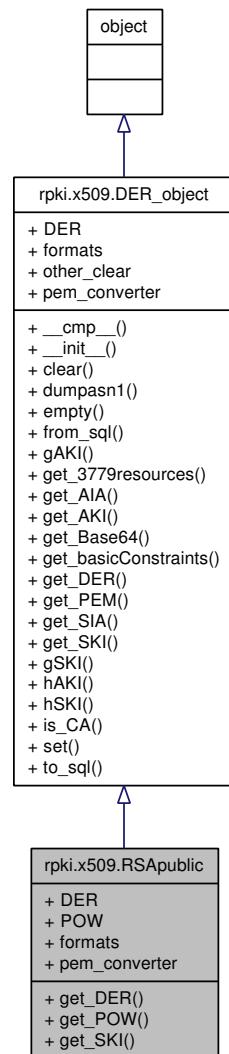
Definition at line 527 of file x509.py.

The documentation for this class was generated from the following file:

- [x509.py \(1916\)](#)

3.168 rpkix509.RSAPublic Class Reference

Inheritance diagram for rpkix509.RSAPublic:



Public Member Functions

- def [get_DER](#)
- def [get_POW](#)
- def [get_SKI](#)

Public Attributes

- **DER**

DER value of this object.

- **POW**

Static Public Attributes

- tuple **formats** = ("DER", "POW")

Formats supported in this object.

- tuple **pem_converter** = **PEM_converter**("RSA PUBLIC KEY")

PEM converter for this object.

3.168.1 Detailed Description

Class to hold an RSA public key.

Definition at line 547 of file x509.py.

3.168.2 Member Function Documentation

3.168.2.1 def rpkix509.RSAPublic.get_DER (*self*)

Get the DER value of this public key.

Reimplemented from [rpkix509.DER_object](#).

Definition at line 553 of file x509.py.

3.168.2.2 def rpkix509.RSAPublic.get_POW (*self*)

Get the POW value of this public key.

Definition at line 563 of file x509.py.

3.168.2.3 def rpkix509.RSAPublic.get_SKI (*self*)

Calculate the SKI of this public key.

Reimplemented from [rpkix509.DER_object](#).

Definition at line 570 of file x509.py.

3.168.3 Member Data Documentation

3.168.3.1 rpkix509.RSAPublic.DER

DER value of this [object](#).

Reimplemented from [rpkix509.DER_object](#).

Definition at line 559 of file x509.py.

3.168.3.2 tuple rpkix509.RSAPublic.formats = ("DER", "POW") [static]

Formats supported in this [object](#).

Reimplemented from [rpkix509.DER_object](#).

Definition at line 550 of file x509.py.

3.168.3.3 tuple rpkix509.RSAPublic.pem_converter = PEM_converter("RSA PUBLIC KEY") [static]

PEM converter for this [object](#).

Reimplemented from [rpkix509.DER_object](#).

Definition at line 551 of file x509.py.

3.168.3.4 rpkix509.RSAPublic.POW

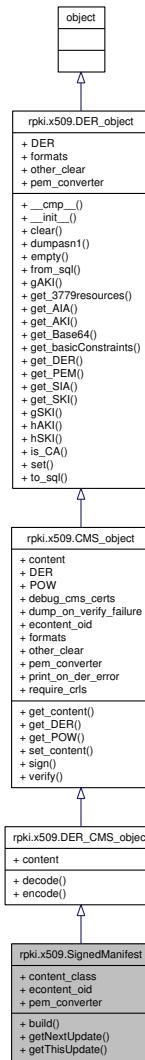
Definition at line 567 of file x509.py.

The documentation for this class was generated from the following file:

- [x509.py \(1916\)](#)

3.169 rpkix509.SignedManifest Class Reference

Inheritance diagram for rpkix509.SignedManifest:



Public Member Functions

- def [build](#)
- def [getNextUpdate](#)
- def [getThisUpdate](#)

Static Public Attributes

- `content_class = rpkim.manifest.Manifest`
- tuple `econtent_oid = POWify_OID("id-ct-rpkiManifest")`
- tuple `pem_converter = PEM_converter("RPKI MANIFEST")`
PEM converter for this object.

3.169.1 Detailed Description

Class to hold a signed manifest.

Definition at line 761 of file x509.py.

3.169.2 Member Function Documentation

3.169.2.1 def rpkix509.SignedManifest.build (*cls, serial, thisUpdate, nextUpdate, names_and_objs, keypair, certs, version = 0*)

Build a signed manifest.

Definition at line 777 of file x509.py.

3.169.2.2 def rpkix509.SignedManifest.getNextUpdate (*self*)

Get nextUpdate value from this manifest.

Definition at line 772 of file x509.py.

3.169.2.3 def rpkix509.SignedManifest.getThisUpdate (*self*)

Get thisUpdate value from this manifest.

Definition at line 768 of file x509.py.

3.169.3 Member Data Documentation

3.169.3.1 rpkix509.SignedManifest.content_class = rpkim.manifest.Manifest [static]

Definition at line 765 of file x509.py.

3.169.3.2 tuple rpki.x509.SignedManifest.econtent_oid = POWify_OID("id-ct-rpkiManifest") [static]

Reimplemented from [rpki.x509.CMS_object](#).

Definition at line 766 of file x509.py.

3.169.3.3 tuple rpki.x509.SignedManifest.pem_converter = PEM_converter("RPKI MANIFEST") [static]

PEM converter for this [object](#).

Reimplemented from [rpki.x509.CMS_object](#).

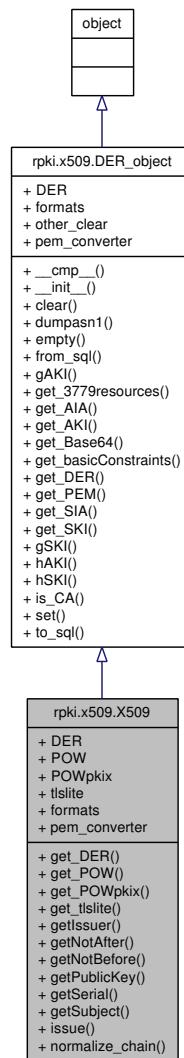
Definition at line 764 of file x509.py.

The documentation for this class was generated from the following file:

- [x509.py \(1916\)](#)

3.170 rpkix509.X509 Class Reference

Inheritance diagram for rpkix509.X509:



Public Member Functions

- def [get_DER](#)
- def [get_POW](#)
- def [get_POWpkix](#)
- def [get_tlslite](#)

- def [getIssuer](#)
- def [getNotAfter](#)
- def [getNotBefore](#)
- def [getPublicKey](#)
- def [getSerial](#)
- def [getSubject](#)
- def [issue](#)
- def [normalize_chain](#)

Public Attributes

- [DER](#)

DER value of this object.

- [POW](#)
- [POWpkix](#)
- [tlslite](#)

Static Public Attributes

- tuple [formats](#) = ("DER", "POW", "POWpkix", "tlslite")
Formats supported in this object.
- tuple [pem_converter](#) = [PEM_converter](#)("CERTIFICATE")
PEM converter for this object.

3.170.1 Detailed Description

X.509 certificates.

This class is designed to hold all the different representations of X.509 certs we're using and convert between them. X.509 support in Python a nasty maze of half-cooked stuff (except perhaps for cryptlib, which is just different). Users of this module should not have to care about this implementation nightmare.

Definition at line 255 of file x509.py.

3.170.2 Member Function Documentation

3.170.2.1 def rpkix509.X509.get_DER (*self*)

Get the DER value of this certificate.

Reimplemented from [rpki.x509.DER_object](#).

Definition at line 268 of file x509.py.

3.170.2.2 def rpki.x509.X509.get_POW (*self*)

Get the POW value of this certificate.

Definition at line 287 of file x509.py.

3.170.2.3 def rpki.x509.X509.get_POWpkix (*self*)

Get the POW.pkix value of this certificate.

Definition at line 294 of file x509.py.

3.170.2.4 def rpki.x509.X509.get_tslite (*self*)

Get the tslite value of this certificate.

Definition at line 303 of file x509.py.

3.170.2.5 def rpki.x509.X509.getIssuer (*self*)

Get the issuer of this certificate.

Definition at line 312 of file x509.py.

3.170.2.6 def rpki.x509.X509.getNotAfter (*self*)

Get the expiration time of this certificate.

Definition at line 324 of file x509.py.

3.170.2.7 def rpki.x509.X509.getNotBefore (*self*)

Get the inception time of this certificate.

Definition at line 320 of file x509.py.

3.170.2.8 def rpki.x509.X509.getPublicKey (*self*)

Extract the public key from this certificate.

Definition at line 332 of file x509.py.

3.170.2.9 def rpki.x509.X509.getSerial (*self*)

Get the serial number of this certificate.

Definition at line 328 of file x509.py.

3.170.2.10 def rpki.x509.X509.getSubject (*self*)

Get the subject of this certificate.

Definition at line 316 of file x509.py.

3.170.2.11 def rpki.x509.X509.issue (*self, keypair, subject_key, serial, sia, aia, crldp, notAfter, cn = None, resources = None, is_ca = True*)

Issue a certificate.

Definition at line 336 of file x509.py.

3.170.2.12 def rpki.x509.X509.normalize_chain (*cls, chain*)

Normalize a chain of certificates into a tuple of X509 objects. Given all the glue certificates needed for BPKI cross certification, it's easiest to allow sloppy arguments to the HTTPS and CMS validation methods and provide a single method that normalizes the allowed cases. So this method allows X509, None, lists, and tuples, and returns a tuple of X509 objects.

Definition at line 390 of file x509.py.

3.170.3 Member Data Documentation**3.170.3.1 rpki.x509.X509.DER**

DER value of this [object](#).

Reimplemented from [rpki.x509.DER_object](#).

Definition at line 274 of file x509.py.

3.170.3.2 tuple rpki.x509.X509.formats = ("DER", "POW", "POWpkix", "tlslite") [static]

Formats supported in this [object](#).

Reimplemented from [rpki.x509.DER_object](#).

Definition at line 265 of file x509.py.

3.170.3.3 tuple rpki.x509.X509.pem_converter = PEM_converter("CERTIFICATE") [static]

PEM converter for this [object](#).

Reimplemented from [rpki.x509.DER_object](#).

Definition at line 266 of file x509.py.

3.170.3.4 rpki.x509.X509.POW

Definition at line 291 of file x509.py.

3.170.3.5 rpki.x509.X509.POWPkix

Definition at line 300 of file x509.py.

3.170.3.6 rpki.x509.X509.tlslite

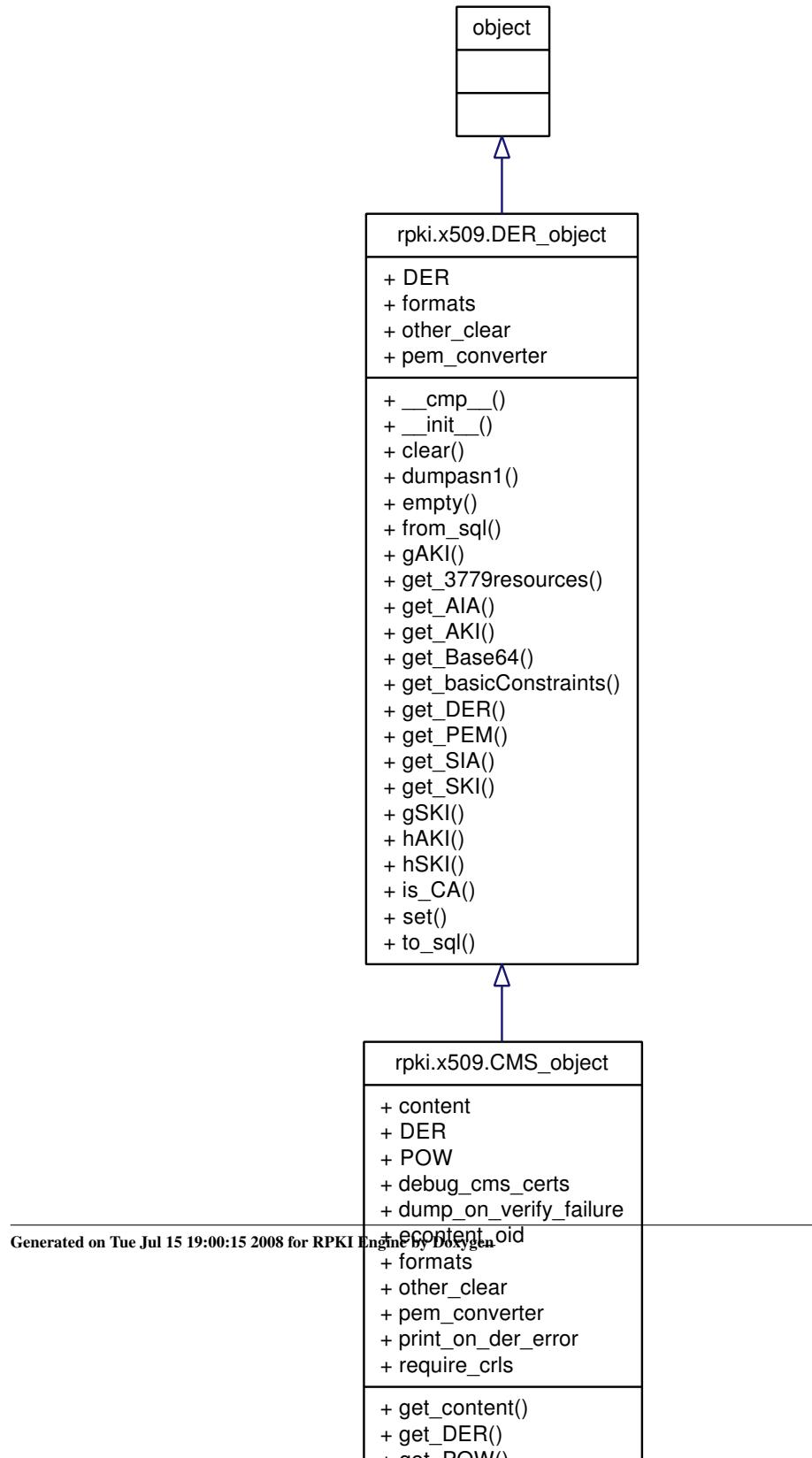
Definition at line 309 of file x509.py.

The documentation for this class was generated from the following file:

- [x509.py \(1916\)](#)

3.171 rpkix509.XML_CMS_object Class Reference

Inheritance diagram for rpkix509.XML_CMS_object:



Public Member Functions

- def [decode](#)
- def [dump_to_disk](#)
- def [encode](#)
- def [pretty_print_content](#)
- def [schema_check](#)
- def [unwrap](#)
- def [wrap](#)

Public Attributes

- [content](#)

Static Public Attributes

- [dump_inbound_cms](#) = None
- [dump_outbound_cms](#) = None

If set, we write all outbound XML-CMS PDUs to disk, for debugging.

- tuple [econtent_oid](#) = POWify_OID("id-ct-xml")

3.171.1 Detailed Description

Class to hold CMS-wrapped XML protocol data.

Definition at line 816 of file x509.py.

3.171.2 Member Function Documentation

3.171.2.1 def rpki.x509.XML_CMS_object.decode (*self*, *xml*)

Decode XML and set inner content.

Definition at line 839 of file x509.py.

3.171.2.2 def rpki.x509.XML_CMS_object.dump_to_disk (*self*, *prefix*)

Write DER of current message to disk, for debugging.

Definition at line 855 of file x509.py.

3.171.2.3 def rpki.x509.XML_CMS_object.encode (*self*)

Encode inner content for signing.

Definition at line 835 of file x509.py.

3.171.2.4 def rpki.x509.XML_CMS_object.pretty_print_content (*self*)

Pretty print XML content of this message.

Definition at line 843 of file x509.py.

3.171.2.5 def rpki.x509.XML_CMS_object.schema_check (*self*)

Handle XML RelaxNG schema check.

Definition at line 847 of file x509.py.

3.171.2.6 def rpki.x509.XML_CMS_object.unwrap (*cls, der, ta, pretty_print = False*)

Unwrap a CMS-wrapped XML PDU and return Python objects.

Definition at line 877 of file x509.py.

3.171.2.7 def rpki.x509.XML_CMS_object.wrap (*cls, msg, keypair, certs, crls = None, pretty_print = False*)

Build a CMS-wrapped XML PDU and return its DER encoding.

Definition at line 862 of file x509.py.

3.171.3 Member Data Documentation**3.171.3.1 rpki.x509.XML_CMS_object.content**

Reimplemented from [rpki.x509.CMS_object](#).

Definition at line 841 of file x509.py.

3.171.3.2 rpki.x509.XML_CMS_object.dump_inbound_cms = None
[static]

Definition at line 833 of file x509.py.

3.171.3.3 rpki::x509.XML_CMS_object::dump_outbound_cms = None
[static]

If set, we write all outbound XML-CMS PDUs to disk, for debugging.

If set, we write all inbound XML-CMS PDUs to disk, for debugging.

Value of this variable is prefix portion of filename, tail will be a timestamp.

Definition at line 826 of file x509.py.

3.171.3.4 tuple rpki.x509.XML_CMS_object.econtent_oid = POWify_OID("id-ct-xml") [static]

Reimplemented from [rpki.x509.CMS_object](#).

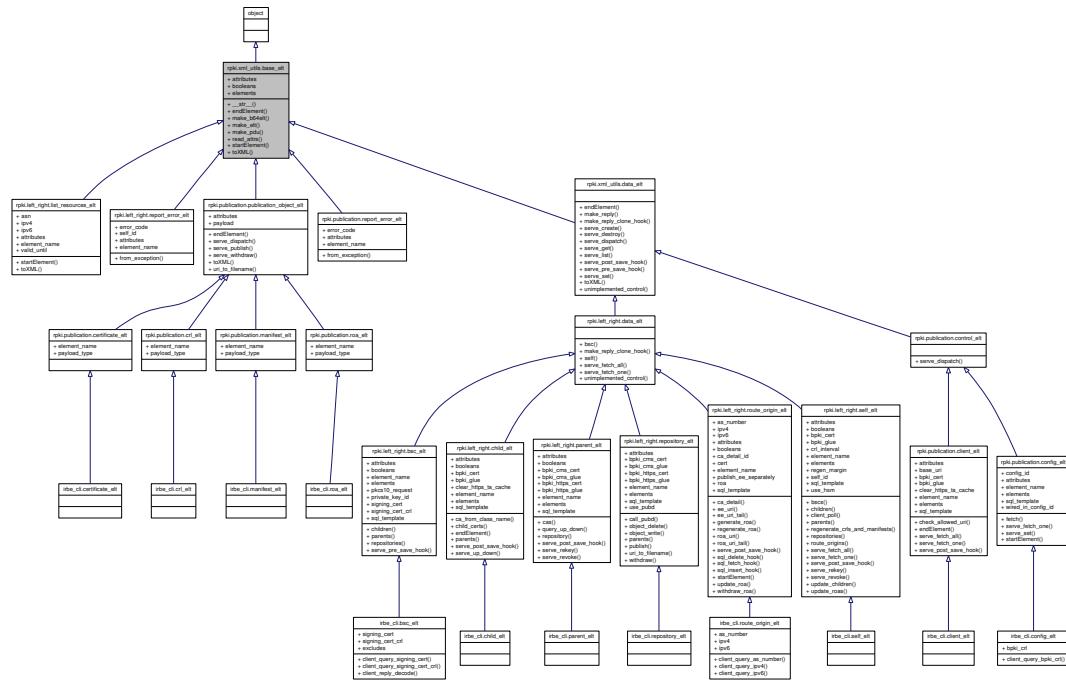
Definition at line 819 of file x509.py.

The documentation for this class was generated from the following file:

- [x509.py \(1916\)](#)

3.172 rpkixml_utils.base_elt Class Reference

Inheritance diagram for rpki.xml_utils.base_elt



Public Member Functions

- def __str__
 - def endElement
 - def make_b64elt
 - def make_elt
 - def make_pdu
 - def readAttrs
 - def startElement
 - def toXML

Static Public Attributes

- tuple **attributes** = ()
XML attributes for this element

- tuple **booleans** = ()
Boolean attributes (value "yes" or "no") for this element.
- tuple **elements** = ()
XML elements contained by this element.

3.172.1 Detailed Description

Virtual base class for XML message elements. The left-right and publication protocols use this. At least for now, the up-down protocol does not, due to different design assumptions.

Definition at line 101 of file `xml_utils.py`.

3.172.2 Member Function Documentation

3.172.2.1 def rpki.xml_utils.base_elt.__str__ (self)

Convert a `base_elt` object to string format.

Definition at line 163 of file `xml_utils.py`.

3.172.2.2 def rpki.xml_utils.base_elt.endElement (self, stack, name, text)

Default `endElement()` handler: just pop the stack.

Reimplemented in `rpki.left_right.child_elt`, `rpki.publication.client_elt`, `rpki.publication.publication_object_elt`, and `rpki.xml_utils.data_elt`.

Definition at line 125 of file `xml_utils.py`.

3.172.2.3 def rpki.xml_utils.base_elt.make_b64elt (self, elt, name, value = None)

Constructor for Base64-encoded subelement.

Definition at line 156 of file `xml_utils.py`.

3.172.2.4 def rpki.xml_utils.base_elt.make_elt (self)

XML element constructor.

Definition at line 144 of file `xml_utils.py`.

3.172.2.5 def rpki.xml_utils.base_elt.make_pdu (*cls*, *kargs*)

Generic PDU constructor.

Definition at line 168 of file xml_utils.py.

3.172.2.6 def rpki.xml_utils.base_elt.readAttrs (*self*, *attrs*)

Template-driven attribute reader.

Definition at line 134 of file xml_utils.py.

3.172.2.7 def rpki.xml_utils.base_elt.startElement (*self*, *stack*, *name*, *attrs*)

Default startElement() handler: just process attributes.

Reimplemented in [rpki.left_right.route_origin_elt](#), [rpki.left_right.list_resources_elt](#), and [rpki.publication.config_elt](#).

Definition at line 119 of file xml_utils.py.

3.172.2.8 def rpki.xml_utils.base_elt.toXML (*self*)

Default toXML() element generator.

Reimplemented in [rpki.left_right.list_resources_elt](#), [rpki.publication.publication_object_elt](#), and [rpki.xml_utils.data_elt](#).

Definition at line 130 of file xml_utils.py.

3.172.3 Member Data Documentation**3.172.3.1 rpki::xml_utils.base_elt::attributes = () [static]**

XML attributes for this element.

Reimplemented in [rpki.left_right.self_elt](#), [rpki.left_right.bsc_elt](#), [rpki.left_right.parent_elt](#), [rpki.left_right.child_elt](#), [rpki.left_right.repository_elt](#), [rpki.left_right.route_origin_elt](#), [rpki.left_right.list_resources_elt](#), [rpki.left_right.report_error_elt](#), [rpki.publication.config_elt](#), [rpki.publication.client_elt](#), [rpki.publication.publication_object_elt](#), and [rpki.publication.report_error_elt](#).

Definition at line 109 of file xml_utils.py.

3.172.3.2 rpki::xml_utils.base_elt::booleans = () [static]

Boolean attributes (value "yes" or "no") for this element.

Reimplemented in [rpki.left_right.self_elt](#), [rpki.left_right.bsc_elt](#), [rpki.left_right.parent_elt](#), [rpki.left_right.child_elt](#), and [rpki.left_right.route_origin_elt](#).

Definition at line 117 of file [xml_utils.py](#).

3.172.3.3 rpki::xml_utils.base_elt::elements = () [static]

XML elements contained by this element.

Reimplemented in [rpki.left_right.self_elt](#), [rpki.left_right.bsc_elt](#), [rpki.left_right.parent_elt](#), [rpki.left_right.child_elt](#), [rpki.left_right.repository_elt](#), [rpki.publication.config_elt](#), and [rpki.publication.client_elt](#).

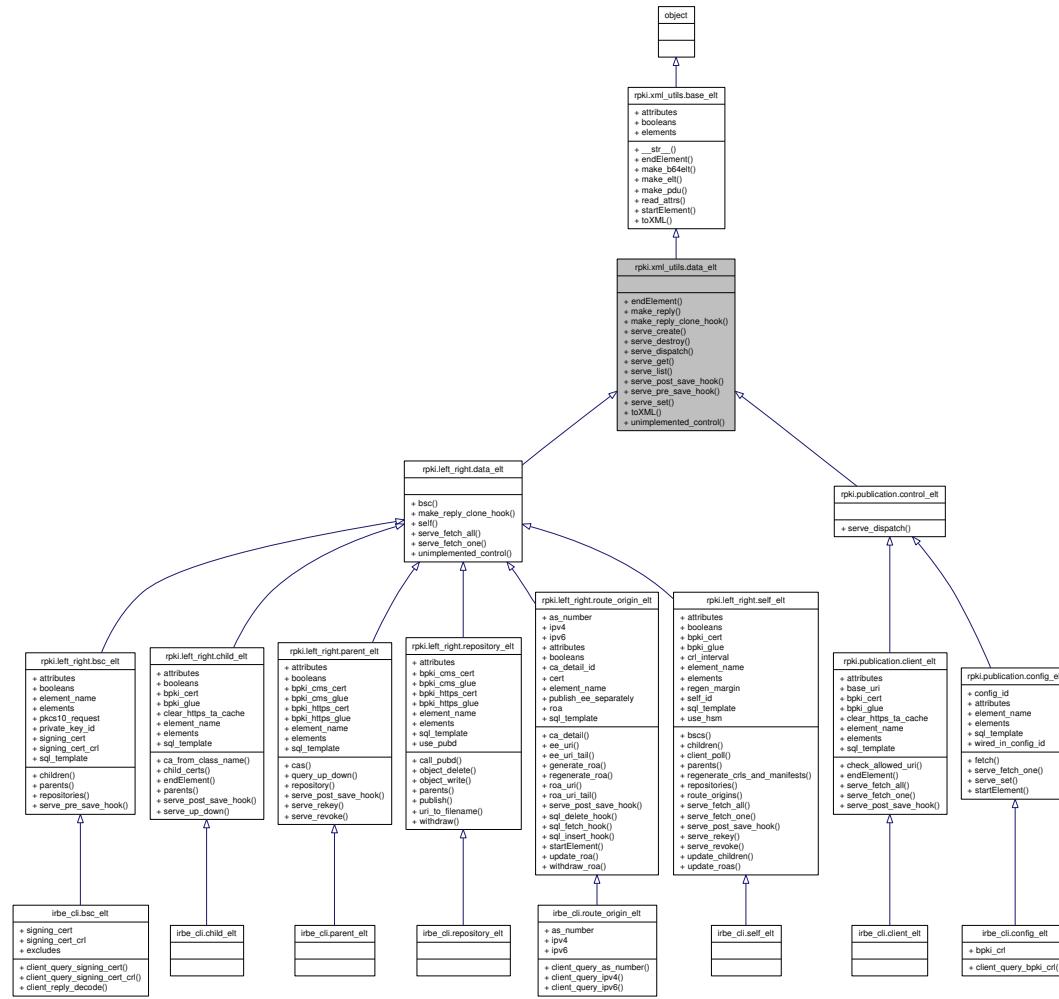
Definition at line 113 of file [xml_utils.py](#).

The documentation for this class was generated from the following file:

- [xml_utils.py \(1873\)](#)

3.173 rpkixml_utils.data_elt Class Reference

Inheritance diagram for rpkixml_utils.data_elt:



Public Member Functions

- def [endElement](#)
- def [make_reply](#)
- def [make_reply_clone_hook](#)
- def [serve_create](#)
- def [serve_destroy](#)

- def [serve_dispatch](#)
- def [serve_get](#)
- def [serve_list](#)
- def [serve_post_save_hook](#)
- def [serve_pre_save_hook](#)
- def [serve_set](#)
- def [toXML](#)
- def [unimplemented_control](#)

3.173.1 Detailed Description

Virtual base class for PDUs that map to SQL objects. These objects all implement the create/set/get/list/destroy action attribute.

Definition at line 177 of file `xml_utils.py`.

3.173.2 Member Function Documentation

3.173.2.1 def rpkixml_utils.data_elt.endElement (*self*, *stack*, *name*, *text*)

Default endElement handler for SQL-based objects. This assumes that sub-elements are Base64-encoded using the `sql_template` mechanism.

Reimplemented from [rpkixml_utils.base_elt](#).

Reimplemented in [rpki.left_right.child_elt](#), and [rpki.publication.client_elt](#).

Definition at line 183 of file `xml_utils.py`.

3.173.2.2 def rpkixml_utils.data_elt.make_reply (*self*, *r_pdu* = None)

Construct a reply PDU.

Definition at line 206 of file `xml_utils.py`.

3.173.2.3 def rpkixml_utils.data_elt.make_reply_clone_hook (*self*, *r_pdu*)

Overridable hook.

Reimplemented in [rpki.left_right.data_elt](#).

Definition at line 219 of file `xml_utils.py`.

3.173.2.4 def rpki.xml_utils.data_elt.serve_create (*self*, *r_msg*)

Handle a create action.

Definition at line 231 of file xml_utils.py.

3.173.2.5 def rpki.xml_utils.data_elt.serve_destroy (*self*, *r_msg*)

Handle a destroy action.

Definition at line 266 of file xml_utils.py.

3.173.2.6 def rpki.xml_utils.data_elt.serve_dispatch (*self*, *r_msg*)

Action dispatch handler.

Definition at line 272 of file xml_utils.py.

3.173.2.7 def rpki.xml_utils.data_elt.serve_get (*self*, *r_msg*)

Handle a get action.

Definition at line 254 of file xml_utils.py.

3.173.2.8 def rpki.xml_utils.data_elt.serve_list (*self*, *r_msg*)

Handle a list action for non-self objects.

Definition at line 260 of file xml_utils.py.

3.173.2.9 def rpki.xml_utils.data_elt.serve_post_save_hook (*self*, *q_pdu*, *r_pdu*)

Overridable hook.

Reimplemented in [rpki.left_right.self_elt](#), [rpki.left_right.parent_elt](#), [rpki.left_right.child_elt](#), [rpki.left_right.route_origin_elt](#), and [rpki.publication.client_elt](#).

Definition at line 227 of file xml_utils.py.

3.173.2.10 def rpki.xml_utils.data_elt.serve_pre_save_hook (*self*, *q_pdu*, *r_pdu*)

Overridable hook.

Reimplemented in [rpki.left_right.bsc_elt](#).

Definition at line 223 of file `xml_utils.py`.

3.173.2.11 def rpki.xml_utils.data_elt.serve_set (*self*, *r_msg*)

Handle a set action.

Reimplemented in [rpki.publication.config_elt](#).

Definition at line 240 of file `xml_utils.py`.

3.173.2.12 def rpki.xml_utils.data_elt.toXML (*self*)

Default element generator for SQL-based objects. This assumes that sub-elements are Base64-encoded DER objects.

Reimplemented from [rpki.xml_utils.base_elt](#).

Definition at line 195 of file `xml_utils.py`.

3.173.2.13 def rpki.xml_utils.data_elt.unimplemented_control (*self*, *controls*)

Uniform handling for unimplemented control operations.

Reimplemented in [rpki.left_right.data_elt](#).

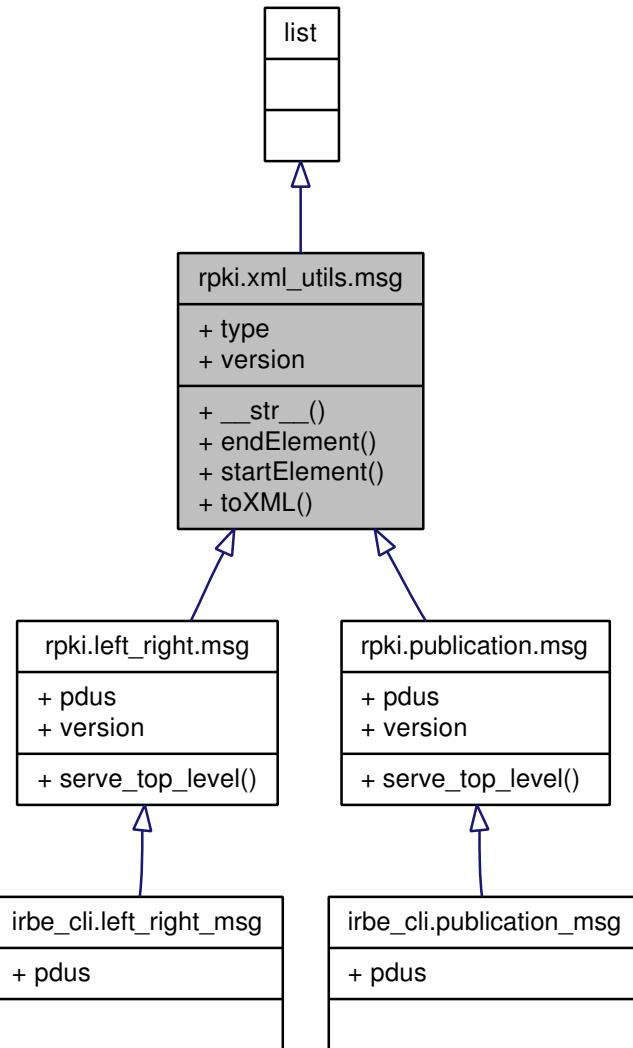
Definition at line 283 of file `xml_utils.py`.

The documentation for this class was generated from the following file:

- [xml_utils.py \(1873\)](#)

3.174 rpkixml_utils.msg Class Reference

Inheritance diagram for rpkixml_utils.msg:



Public Member Functions

- def `__str__`
- def `endElement`
- def `startElement`
- def `toXML`

Public Attributes

- [type](#)
- [version](#)

3.174.1 Detailed Description

Generic top-level PDU.

Definition at line 289 of file `xml_utils.py`.

3.174.2 Member Function Documentation

3.174.2.1 def rpkixml_utils.msg.`__str__` (*self*)

Convert msg object to string.

Definition at line 309 of file `xml_utils.py`.

3.174.2.2 def rpkixml_utils.msg.`endElement` (*self, stack, name, text*)

Handle top-level PDU.

Definition at line 303 of file `xml_utils.py`.

3.174.2.3 def rpkixml_utils.msg.`startElement` (*self, stack, name, attrs*)

Handle top-level PDU.

Definition at line 292 of file `xml_utils.py`.

3.174.2.4 def rpkixml_utils.msg.`toXML` (*self*)

Generate top-level PDU.

Definition at line 313 of file `xml_utils.py`.

3.174.3 Member Data Documentation

3.174.3.1 rpkixml_utils.msg.`type`

Definition at line 296 of file `xml_utils.py`.

3.174.3.2 rpki.xml_utils.msg.version

Reimplemented in [rpki.left_right.msg](#), and [rpki.publication.msg](#).

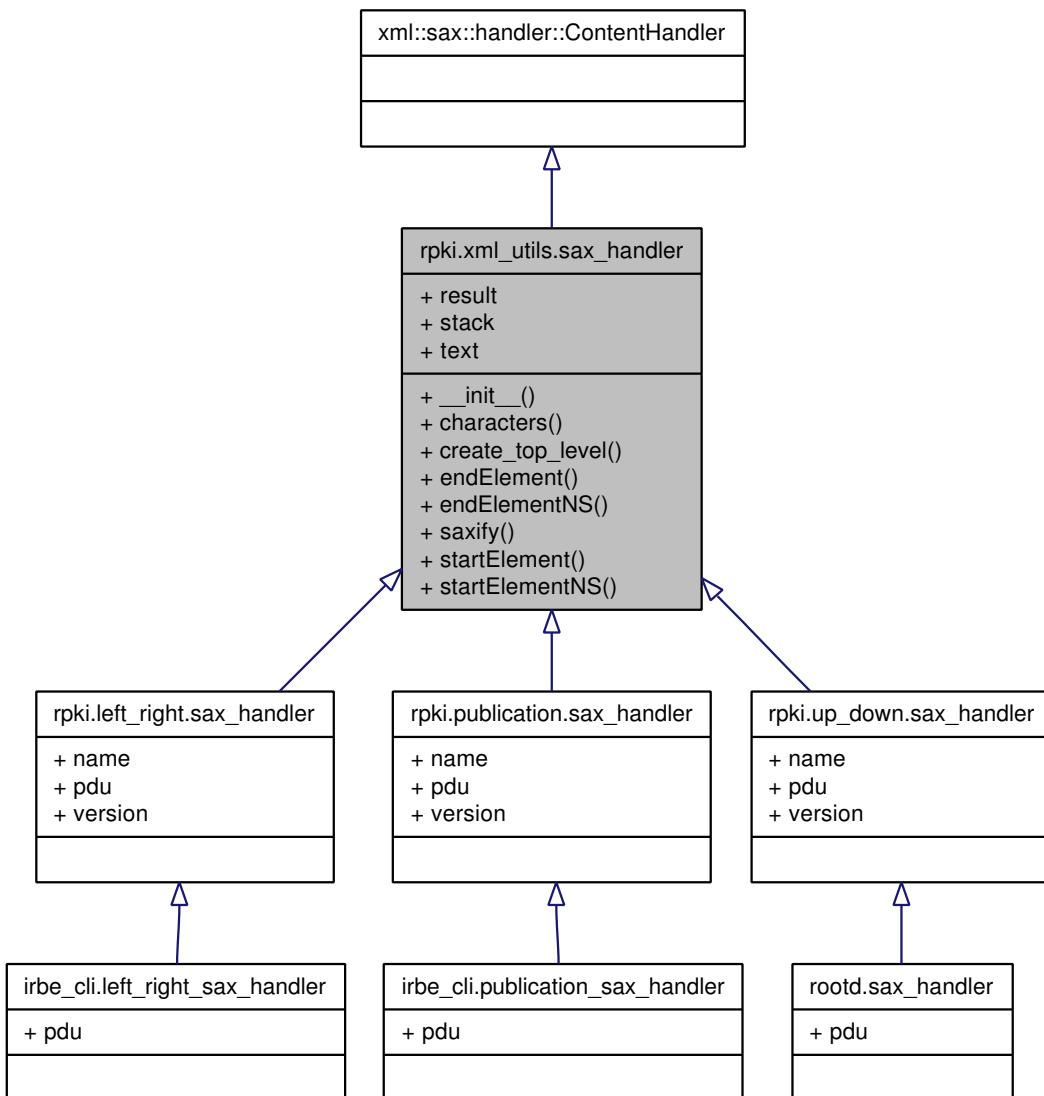
Definition at line 295 of file `xml_utils.py`.

The documentation for this class was generated from the following file:

- [xml_utils.py \(1873\)](#)

3.175 rpkixml_utils.sax_handler Class Reference

Inheritance diagram for rpkixml_utils.sax_handler:



Public Member Functions

- def `__init__`
- def `characters`

- def [create_top_level](#)
- def [endElement](#)
- def [endElementNS](#)
- def [saxify](#)
- def [startElement](#)
- def [startElementNS](#)

Public Attributes

- [result](#)
- [stack](#)
- [text](#)

3.175.1 Detailed Description

SAX handler for RPKI protocols.

This class provides some basic amenities for parsing protocol XML of the kind we use in the RPKI protocols, including whacking all the protocol element text into US-ASCII, simplifying accumulation of text fields, and hiding some of the fun relating to XML namespaces.

General assumption: by the time this parsing code gets invoked, the XML has already passed RelaxNG validation, so we only have to check for errors that the schema can't catch, and we don't have to play as many XML namespace games.

Definition at line 22 of file `xml_utils.py`.

3.175.2 Member Function Documentation

3.175.2.1 def rpki.xml_utils.sax_handler.[__init__](#) (*self*)

Initialize SAX handler.

Definition at line 36 of file `xml_utils.py`.

3.175.2.2 def rpki.xml_utils.sax_handler.[characters](#) (*self*, *content*)

Accumulate a chuck of element content (text).

Definition at line 49 of file `xml_utils.py`.

3.175.2.3 def rpki.xml_utils.sax_handler.create_top_level (*self*, *name*, *attrs*)

Handle top-level PDU for this protocol.

Definition at line 96 of file xml_utils.py.

3.175.2.4 def rpki.xml_utils.sax_handler.endElement (*self*, *name*)

Handle endElement() events.

Mostly this means handling any accumulated element text.

Definition at line 79 of file xml_utils.py.

3.175.2.5 def rpki.xml_utils.sax_handler.endElementNS (*self*, *name*, *qname*)

Redirect endElementNS() events to endElement().

Definition at line 45 of file xml_utils.py.

3.175.2.6 def rpki.xml_utils.sax_handler.saxify (*cls*, *elt*)

Create a one-off SAX parser, parse an ETree, return the result.

Definition at line 89 of file xml_utils.py.

3.175.2.7 def rpki.xml_utils.sax_handler.startElement (*self*, *name*, *attrs*)

Handle startElement() events.

We maintain a stack of nested elements under construction so that we can feed events directly to the current element rather than having to pass them through all the nesting elements.

If the stack is empty, this event is for the outermost element, so we call a virtual method to create the corresponding object and that's the object we'll be returning as our final result.

Definition at line 53 of file xml_utils.py.

3.175.2.8 def rpki.xml_utils.sax_handler.startElementNS (*self*, *name*, *qname*, *attrs*)

Redirect startElementNS() events to startElement().

Definition at line 41 of file xml_utils.py.

3.175.3 Member Data Documentation

3.175.3.1 rpk.xml_utils.sax_handler.result

Definition at line 75 of file `xml_utils.py`.

3.175.3.2 rpk.xml_utils.sax_handler.stack

Definition at line 39 of file `xml_utils.py`.

3.175.3.3 rpk.xml_utils.sax_handler.text

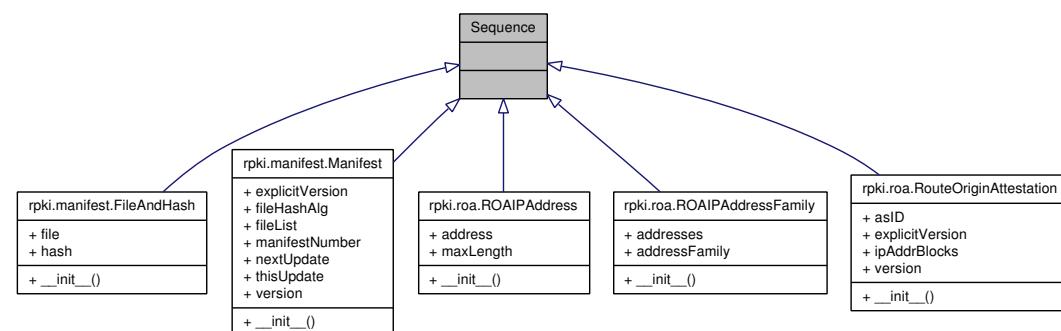
Definition at line 38 of file `xml_utils.py`.

The documentation for this class was generated from the following file:

- [xml_utils.py \(1873\)](#)

3.176 Sequence Class Reference

Inheritance diagram for Sequence:

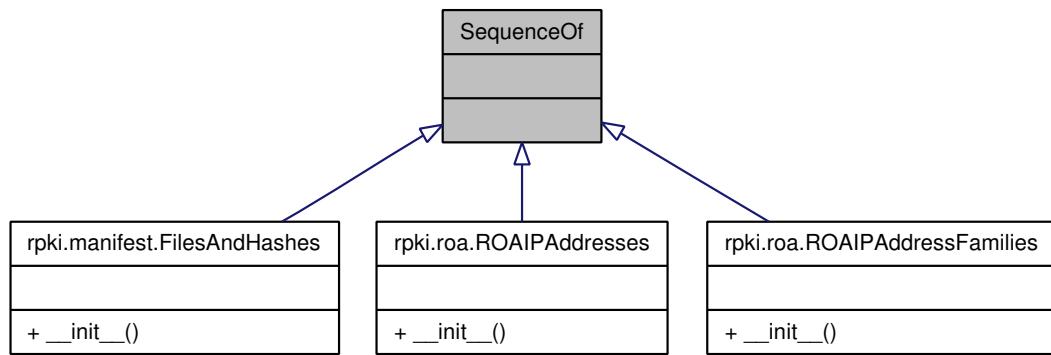


The documentation for this class was generated from the following file:

- [roa.py \(1975\)](#)

3.177 SequenceOf Class Reference

Inheritance diagram for SequenceOf:

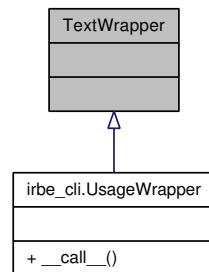


The documentation for this class was generated from the following file:

- [roa.py \(1975\)](#)

3.178 TextWrapper Class Reference

Inheritance diagram for TextWrapper:

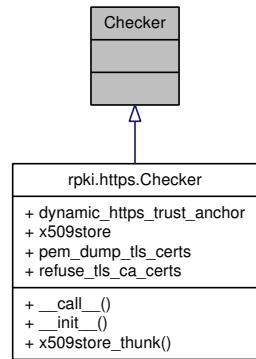


The documentation for this class was generated from the following file:

- [irbe_cli.py \(1995\)](#)

3.179 Checker Class Reference

Inheritance diagram for Checker:

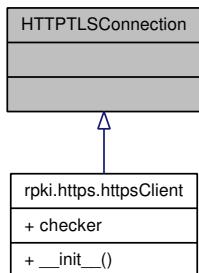


The documentation for this class was generated from the following file:

- [https.py \(1873\)](#)

3.180 HTTPTLSConnection Class Reference

Inheritance diagram for HTTPTLSConnection:

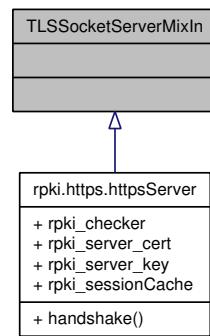


The documentation for this class was generated from the following file:

- [https.py \(1873\)](#)

3.181 TLSSocketServerMixIn Class Reference

Inheritance diagram for TLSSocketServerMixIn:

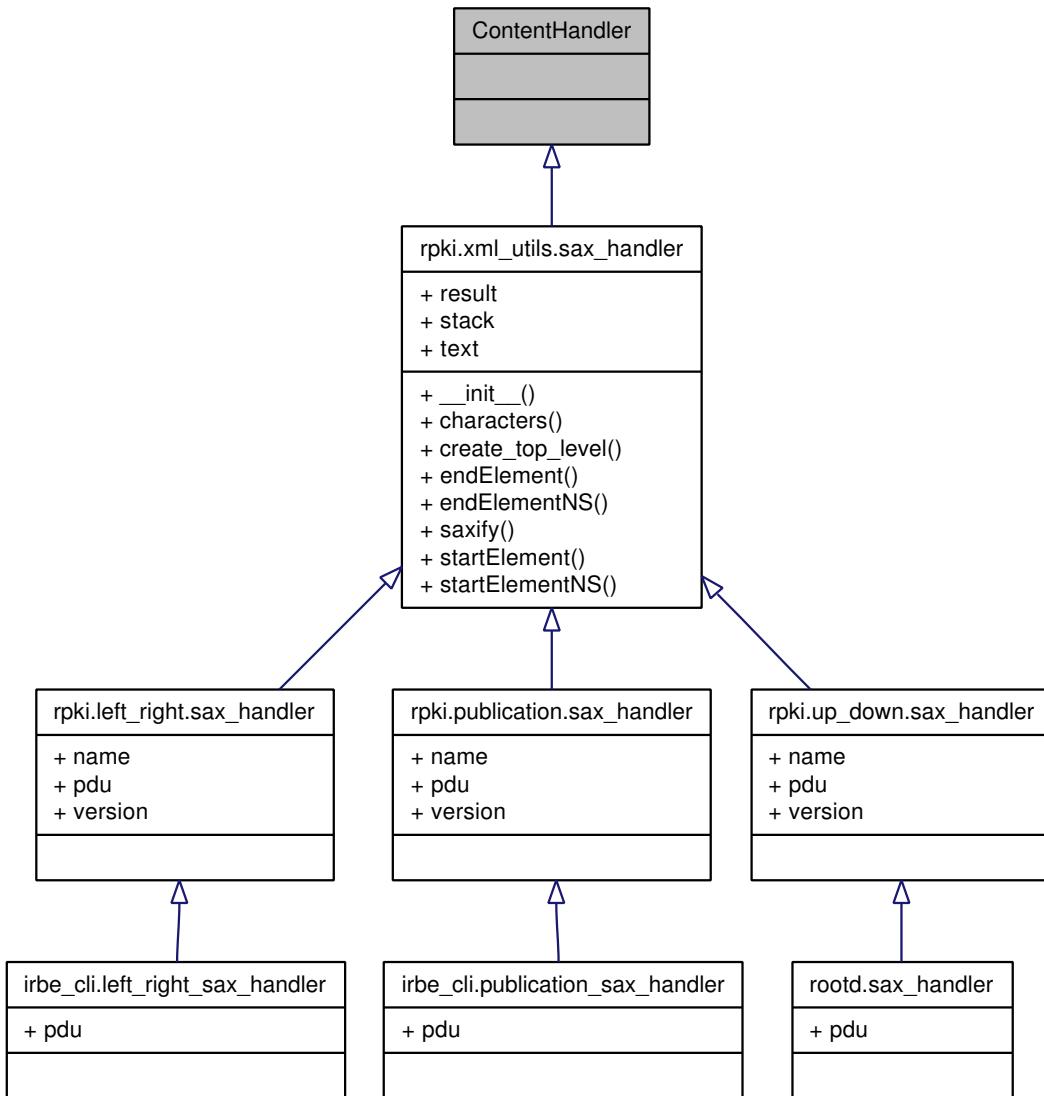


The documentation for this class was generated from the following file:

- [https.py \(1873\)](#)

3.182 ContentHandler Class Reference

Inheritance diagram for ContentHandler:



The documentation for this class was generated from the following file:

- [xml_utils.py \(1873\)](#)

4 File Documentation

4.1 __init__.py File Reference

Namespaces

- namespace [rpki](#)

4.2 config.py File Reference

Namespaces

- namespace [rpki.config](#)

Classes

- class [rpki.config.parser](#)

4.3 cross_certify.py File Reference

Namespaces

- namespace [cross_certify](#)

Functions

- def [cross_certify.usage](#)

Variables

- tuple [cross_certify.cert = rpki.x509.X509\(POWpkix = x\)](#)
- tuple [cross_certify.child = rpki.x509.X509\(Auto_file = a\)](#)
- tuple [cross_certify.f = open\(serial_file, "r"\)](#)
- tuple [cross_certify.keypair = rpki.x509.RSA\(Auto_file = a\)](#)
- tuple [cross_certify.lifetime = rpki.sundial.timedelta\(days = 30\)](#)
- [cross_certify.notAfter = now+lifetime](#)
- tuple [cross_certify.now = rpki.sundial.now\(\)](#)
- [cross_certify.output = None](#)
- tuple [cross_certify.parent = rpki.x509.X509\(Auto_file = a\)](#)
- tuple [cross_certify.serial = f.read\(\)](#)
- [cross_certify.serial_file = a](#)
- tuple [cross_certify.x = POW.pkix.Certificate\(\)](#)

4.4 exceptions.py File Reference

Namespaces

- namespace [rpki.exceptions](#)

Classes

- class [rpki.exceptions.BadClassNameSyntax](#)
- class [rpki.exceptions.BadContactURL](#)
- class [rpki.exceptions.BadIRDBReply](#)
- class [rpki.exceptions.BadIssueResponse](#)
- class [rpki.exceptions.BadPKCS10](#)
- class [rpki.exceptions.BadQuery](#)
- class [rpki.exceptions.BadSender](#)
- class [rpki.exceptions.BadStatusCode](#)
- class [rpki.exceptions.BadURISyntax](#)
- class [rpki.exceptions.BSCNotFound](#)
- class [rpki.exceptions.ChildNotFound](#)
- class [rpki.exceptions.ClassNameMismatch](#)
- class [rpki.exceptions.CMSCRLNotSet](#)
- class [rpki.exceptions.CMSVerificationFailed](#)
- class [rpki.exceptions.DBConsistencyError](#)
- class [rpki.exceptions.DERObjectConversionError](#)
- class [rpki.exceptions.EmptyPEM](#)
- class [rpki.exceptions.HTTPRequestFailed](#)
- class [rpki.exceptions.MissingCMSCRL](#)
- class [rpki.exceptions.MissingCMSEECert](#)
- class [rpki.exceptions.MultipleTLSEECert](#)
- class [rpki.exceptions.MustBePrefix](#)
- class [rpki.exceptions.NotACertificateChain](#)
- class [rpki.exceptions.NotFound](#)
- class [rpki.exceptions.NotImplementedYet](#)
- class [rpki.exceptions.NotInDatabase](#)
- class [rpki.exceptions.ReceivedTLSCACert](#)
- class [rpki.exceptions.RPKI_Exception](#)
- class [rpki.exceptions.ServerShuttingDown](#)
- class [rpki.exceptions.SKIMismatch](#)
- class [rpki.exceptions.SubprocessError](#)
- class [rpki.exceptions.TLSValidation_Error](#)
- class [rpki.exceptions.UnexpectedCMSCerts](#)
- class [rpki.exceptions.UnexpectedCMSCRLs](#)
- class [rpki.exceptions.UnparsableCMSDER](#)
- class [rpki.exceptions.UpstreamError](#)
- class [rpki.exceptions.WrongEContentType](#)

4.5 https.py File Reference

Namespaces

- namespace [rpki.https](#)

Classes

- class [rpki.https.Checker](#)
- class [rpki.https.httpsClient](#)
- class [rpki.https.httpsServer](#)
- class [rpki.https.requestHandler](#)

Functions

- def [rpki::https.build_https_ta_cache](#)
- def [rpki::https.client](#)
- def [rpki::https.server](#)
- def [rpki::https.tlslite_certChain](#)

Variables

- [rpki::https.debug_tls_certs](#) = False
- [rpki::https.disable_tls_certificate_validation_exceptions](#) = False
- string [rpki::https.rpki_content_type](#) = "application/x-rpki"

4.6 ipaddrs.py File Reference

Namespaces

- namespace [rpki.ipaddrs](#)

Classes

- class [rpki.ipaddrs.v4addr](#)
- class [rpki.ipaddrs.v6addr](#)

4.7 irbe_cli.py File Reference

Namespaces

- namespace [irbe_cli](#)

Classes

- class `irbe_cli.bsc_elt`
- class `irbe_cli.certificate_elt`
- class `irbe_cli.child_elt`
- class `irbe_cli.client_elt`
- class `irbe_cli.cmd_elt_mixin`
- class `irbe_cli.cmd_msg_mixin`
- class `irbe_cli.config_elt`
- class `irbe_cli.crl_elt`
- class `irbe_cli.left_right_cms_msg`
- class `irbe_cli.left_right_msg`
- class `irbe_cli.left_right_sax_handler`
- class `irbe_cli.manifest_elt`
- class `irbe_cli.parent_elt`
- class `irbe_cli.publication_cms_msg`
- class `irbe_cli.publication_msg`
- class `irbe_cli.publication_sax_handler`
- class `irbe_cli.repository_elt`
- class `irbe_cli.roa_elt`
- class `irbe_cli.route_origin_elt`
- class `irbe_cli.self_elt`
- class `irbe_cli.UsageWrapper`

Functions

- def `irbe_cli.call_daemon`
- def `irbe_cli.usage`

Variables

- list `irbe_cli.argv` = sys.argv[1:]
- tuple `irbe_cli.cfg` = rpki.config.parser(cfg_file, "irbe_cli")
- string `irbe_cli.cfg_file` = "irbe.conf"
- tuple `irbe_cli.client_cert` = rpki.x509.X509(Auto_file = cfg.get("rpkid-irbe-cert"))
- tuple `irbe_cli.client_key` = rpki.x509.RSA(Auto_file = cfg.get("rpkid-irbe-key"))
- `irbe_cli.cms_class` = left_right_cms_msg,
- `irbe_cli.pem_out` = None
- `irbe_cli.q_msg` = q_msg_left_right
- tuple `irbe_cli.q_msg_left_right` = left_right_msg()

- tuple `irbe_cli.q_msg_publication` = publication_msg()
- list `irbe_cli.q_pdu` = left_right_msg.pdus[argv[0]]
- tuple `irbe_cli.server_ta`
- list `irbe_cli.top_opts` = ["config=", "help", "pem_out=", "verbose"]
- tuple `irbe_cli.url` = cfg.get("rpkid-url")
- tuple `irbe_cli.usage_fill` = UsageWrapper(subsequent_indent = " " * 4)
- `irbe_cli.verbose` = False

4.8 irdbd.py File Reference

Namespaces

- namespace `irdbd`

Functions

- def `irdbd.handler`

Variables

- tuple `irdbd.bpk_i_ta` = rpki.x509.X509(Auto_file = cfg.get("bpki-ta"))
- tuple `irdbd.cfg` = rpki.config.parser(cfg_file, "irdbd")
- string `irdbd.cfg_file` = "irdbd.conf"
- tuple `irdbd.client_ta` = (bpki_ta, rpkid_cert)
- tuple `irdbd.cur` = db.cursor()
- tuple `irdbd.db`
- tuple `irdbd.handlers` = ((u.path, handler),)
- string `irdbd.host` = "localhost"
- tuple `irdbd.irdbd_cert` = rpki.x509.X509(Auto_file = cfg.get("irdbd-cert"))
- tuple `irdbd.irdbd_key` = rpki.x509.RSA(Auto_file = cfg.get("irdbd-key"))
- int `irdbd.port` = 443
- tuple `irdbd.rpkid_cert` = rpki.x509.X509(Auto_file = cfg.get("rpkid-cert"))
- `irdbd.server_cert` = irdbd_cert,
- tuple `irdbd.startup_msg` = cfg.get("startup-message", "")
- tuple `irdbd.u` = urlparse.urlparse(cfg.get("https-url"))

4.9 left_right.py File Reference

Namespaces

- namespace `rpki.left_right`

Classes

- class [rpki.left_right.bsc_elt](#)
- class [rpki.left_right.child_elt](#)
- class [rpki.left_right.cms_msg](#)
- class [rpki.left_right.data_elt](#)
- class [rpki.left_right.left_right_namespace](#)
- class [rpki.left_right.list_resources_elt](#)
- class [rpki.left_right.msg](#)
- class [rpki.left_right.parent_elt](#)
- class [rpki.left_right.report_error_elt](#)
- class [rpki.left_right.repository_elt](#)
- class [rpki.left_right.route_origin_elt](#)
- class [rpki.left_right.sax_handler](#)
- class [rpki.left_right.self_elt](#)

Variables

- [rpki::left_right.enforce_strict_up_down_xml_sender](#) = False

4.10 log.py File Reference

Namespaces

- namespace [rpki.log](#)

Classes

- class [rpki.log.logger](#)

Functions

- def [rpki::log.init](#)
- def [rpki::log.set_trace](#)
- def [rpki::log.trace](#)

Variables

- tuple [rpki::log.debug](#) = logger(syslog.LOG_DEBUG)
- [rpki::log.enable_trace](#) = False

Whether call tracing is enabled.

- tuple `rpkி::log.error` = logger(syslog.LOG_ERR)
- tuple `rpkி::log.info` = logger(syslog.LOG_INFO)
- tuple `rpkி::log.note` = logger(syslog.LOG_NOTICE)
- tuple `rpkி::log.warn` = logger(syslog.LOG_WARNING)

4.11 manifest.py File Reference

Namespaces

- namespace `rpkி.manifest`

Classes

- class `rpkி.manifest.FileAndHash`
- class `rpkième.manifest.FilesAndHashes`
- class `rpkième.manifest.Manifest`

4.12 oids.py File Reference

Namespaces

- namespace `rpkième.oids`

Variables

- tuple `rpkième.oids.name2oid` = dict((v,k) for k,v in oid2name.items())
Mapping table of string names to OIDs.

- dictionary `rpkième.oids.oid2name`
Mapping table of OIDs to conventional string names.

4.13 pubd.py File Reference

Namespaces

- namespace `pubd`

Classes

- class [pubd.pubd_context](#)

Functions

- def [pubd.main](#)

Variables

- string [pubd.cfg_file](#) = "pubd.conf"
- [pubd.profile](#) = False

4.14 publication.py File Reference**Namespaces**

- namespace [rpki.publication](#)

Classes

- class [rpki.publication.certificate_elt](#)
- class [rpki.publication.client_elt](#)
- class [rpki.publication.cms_msg](#)
- class [rpki.publication.config_elt](#)
- class [rpki.publication.control_elt](#)
- class [rpki.publication.crl_elt](#)
- class [rpki.publication.manifest_elt](#)
- class [rpki.publication.msg](#)
- class [rpki.publication.publication_namespace](#)
- class [rpki.publication.publication_object_elt](#)
- class [rpki.publication.report_error_elt](#)
- class [rpki.publication.roa_elt](#)
- class [rpki.publication.sax_handler](#)

Variables

- tuple [rpki::publication.obj2elt](#) = dict((e.payload_type, e) for e in (certificate_elt, crl_elt, manifest_elt, roa_elt))

Map of data types to publication element wrapper types.

4.15 relaxng.py File Reference

Namespaces

- namespace [rpki.relaxng](#)

Variables

- tuple [rpki::relaxng.left_right](#)
Parsed RelaxNG `left_right` schema.
- tuple [rpki::relaxng.publication](#)
Parsed RelaxNG `publication` schema.
- tuple [rpki::relaxng.up_down](#)
Parsed RelaxNG `up_down` schema.

4.16 resource_set.py File Reference

Namespaces

- namespace [rpki.resource_set](#)

Classes

- class [rpki.resource_set.resource_bag](#)
- class [rpki.resource_set.resource_range](#)
- class [rpki.resource_set.resource_range_as](#)
- class [rpki.resource_set.resource_range_ip](#)
- class [rpki.resource_set.resource_range_ipv4](#)
- class [rpki.resource_set.resource_range_ipv6](#)
- class [rpki.resource_set.resource_set](#)
- class [rpki.resource_set.resource_set_as](#)
- class [rpki.resource_set.resource_set_ip](#)
- class [rpki.resource_set.resource_set_ipv4](#)
- class [rpki.resource_set.resource_set_ipv6](#)
- class [rpki.resource_set.roa_prefix](#)
- class [rpki.resource_set.roa_prefix_ipv4](#)
- class [rpki.resource_set.roa_prefix_ipv6](#)
- class [rpki.resource_set.roa_prefix_set](#)
- class [rpki.resource_set.roa_prefix_set_ipv4](#)
- class [rpki.resource_set.roa_prefix_set_ipv6](#)

Functions

- def `rpkি::resource_set._bs2long`
- def `rpkি::resource_set._long2bs`
- def `rpkি::resource_set._rsplit`
- def `rpkি::resource_set.test1`
- def `rpkি::resource_set.test2`

Variables

- string `rpkি::resource_set.inherit_token = "<inherit>"`
Token used to indicate inheritance in read and print syntax.

4.17 roa.py File Reference

Namespaces

- namespace `rpkি.roa`

Classes

- class `rpkি.roa.ROAIPAddress`
- class `rpkি.roa.ROAIPAddresses`
- class `rpkি.roa.ROAIPAddressFamilies`
- class `rpkি.roa.ROAIPAddressFamily`
- class `rpkি.roa.RouteOriginAttestation`

4.18 rootd.py File Reference

Namespaces

- namespace `rootd`

Classes

- class `rootd.cms_msg`
- class `rootd.issue_pdu`
- class `rootd.list_pdu`
- class `rootd.message_pdu`
- class `rootd.revoke_pdu`
- class `rootd.sax_handler`

Functions

- def `rootd.compose_response`
- def `rootd.del_subject_cert`
- def `rootd.get_subject_cert`
- def `rootd.set_subject_cert`
- def `rootd.stash_subject_pkcs10`
- def `rootd.up_down_handler`

Variables

- tuple `rootd.bpki_ta = rpki.x509.X509(Auto_file = cfg.get("bpki-ta"))`
- tuple `rootd.cfg = rpki.config.parser(cfg_file, "rootd")`
- string `rootd.cfg_file = "rootd.conf"`
- tuple `rootd.child_bpki_cert = rpki.x509.X509(Auto_file = cfg.get("child-bpki-cert"))`
- tuple `rootd.client_ta = (bpki_ta, child_bpki_cert)`
- `rootd.handlers = up_down_handler`
- `rootd.host = https_server_host,`
- tuple `rootd.https_server_host = cfg.get("server-host", "")`
- tuple `rootd.https_server_port = int(cfg.get("server-port"))`
- `rootd.port = https_server_port,`
- tuple `rootd.rootd_bpki_cert = rpki.x509.X509(Auto_file = cfg.get("rootd-bpki-cert"))`
- tuple `rootd.rootd_bpki_crl = rpki.x509.CRL(Auto_file = cfg.get("rootd-bpki-crl"))`
- tuple `rootd.rootd_bpki_key = rpki.x509.RSA(Auto_file = cfg.get("rootd-bpki-key"))`
- tuple `rootd.rpki_base_uri = cfg.get("rpki-base-uri", "rsync://" + rpki_class_name + ".invalid/")`
- tuple `rootd.rpki_class_name = cfg.get("rpki-class-name", "wombat")`
- tuple `rootd.rpki_root_cert = rpki.x509.X509(Auto_file = cfg.get("rpki-root-cert"))`
- tuple `rootd.rpki_root_cert_uri = cfg.get("rpki-root-cert-uri", rpki_base_uri + "Root.cer")`
- tuple `rootd.rpki_root_crl = cfg.get("rpki-root-crl", "Root.crl")`
- tuple `rootd.rpki_root_dir = cfg.get("rpki-root-dir")`
- tuple `rootd.rpki_root_key = rpki.x509.RSA(Auto_file = cfg.get("rpki-root-key"))`
- tuple `rootd.rpki_root_manifest = cfg.get("rpki-root-manifest", "Root.mnf")`
- tuple `rootd.rpki_subject_cert = cfg.get("rpki-subject-cert", "Subroot.cer")`
- tuple `rootd.rpki_subject_lifetime = rpki.sundial.timedelta(days = 30)`
- tuple `rootd.rpki_subject_pkcs10 = cfg.get("rpki-subject-pkcs10", "")`
- `rootd.server_cert = rootd_bpki_cert,`

4.19 rpkid.py File Reference

Namespaces

- namespace [rpkid](#)

Classes

- class [rpkid.ca_detail_obj](#)
- class [rpkid.ca_obj](#)
- class [rpkid.child_cert_obj](#)
- class [rpkid.revoked_cert_obj](#)
- class [rpkid.rpkid_context](#)

4.20 rpkid.py File Reference

Namespaces

- namespace [rpkid](#)

Functions

- def [rpkid.main](#)

Variables

- string [rpkid.cfg_file](#) = "rpkid.conf"
- [rpkid.profile](#) = None

4.21 sql.py File Reference

Namespaces

- namespace [rpki.sql](#)

Classes

- class [rpki.sql.session](#)
- class [rpki.sql.sql_persistent](#)
- class [rpki.sql.template](#)

4.22 sundial.py File Reference

Namespaces

- namespace [rpki.sundial](#)

Classes

- class [rpki.sundial.datetime](#)
- class [rpki.sundial.timedelta](#)

Functions

- def [rpki::sundial.now](#)
- def [rpki::sundial.test](#)

4.23 up_down.py File Reference

Namespaces

- namespace [rpki.up_down](#)

Classes

- class [rpki.up_down.base_elt](#)
- class [rpki.up_down.certificate_elt](#)
- class [rpki.up_down.class_elt](#)
- class [rpki.up_down.class_response_syntax](#)
- class [rpki.up_down.cms_msg](#)
- class [rpki.up_down.error_response_pdu](#)
- class [rpki.up_down.issue_pdu](#)
- class [rpki.up_down.issue_response_pdu](#)
- class [rpki.up_down.list_pdu](#)
- class [rpki.up_down.list_response_pdu](#)
- class [rpki.up_down.message_pdu](#)
- class [rpki.up_down.multi_uri](#)
- class [rpki.up_down.revoke_pdu](#)
- class [rpki.up_down.revoke_response_pdu](#)
- class [rpki.up_down.revoke_syntax](#)
- class [rpki.up_down.sax_handler](#)

Variables

- dictionary `rpk:::up_down.nsmap` = { None : xmlns }
- string `rpk:::up_down.xmlns` = "http://www.apnic.net/specs/rescerts/up-down/"

4.24 x509.py File Reference

Namespaces

- namespace `rpk.x509`

Classes

- class `rpk.x509.CMS_object`
- class `rpk.x509.CRL`
- class `rpk.x509.DER_CMS_object`
- class `rpk.x509.DER_object`
- class `rpk.x509.PEM_converter`
- class `rpk.x509.PKCS10`
- class `rpk.x509.ROA`
- class `rpk.x509.RSA`
- class `rpk.x509.RSAPublic`
- class `rpk.x509.SignedManifest`
- class `rpk.x509.X509`
- class `rpk.x509.XML_CMS_object`

Functions

- def `rpk:::x509.calculate_SKI`
- def `rpk:::x509.POWify_OID`

4.25 xml_utils.py File Reference

Namespaces

- namespace `rpk.xml_utils`

Classes

- class `rpk.xml_utils.base_elt`
- class `rpk.xml_utils.data_elt`
- class `rpk.xml_utils.msg`
- class `rpk.xml_utils.sax_handler`

Index

`__add__` rpki::sundial::datetime, 333
`__call__` irbe_cli::UsageWrapper, 94
rpki::https::Checker, 150
rpki::log::logger, 214
`__cmp__` rpki::resource_set::resource_range, 257
rpki::resource_set::roa_prefix, 282
rpki::x509::DER_object, 393
`__eq__` rpki::resource_set::resource_bag, 254
`__init__` pubd::pubd_context, 97
rpki::config::parser, 113
rpki::https::Checker, 150
rpki::https::httpsClient, 152
rpki::log::logger, 214
rpki::manifest::FileAndHash, 215
rpki::manifest::FilesAndHashes, 216
rpki::manifest::Manifest, 217
rpki::resource_set::resource_bag, 254
rpki::resource_set::resource_range, 257
rpki::resource_set::resource_set, 267
rpki::resource_set::roa_prefix, 282
rpki::resource_set::roa_prefix_set, 287
rpki::roa::ROAIPAddress, 291
rpki::roa::ROAIPAddresses, 292
rpki::roa::ROAIPAddressFamilies, 293
rpki::roa::ROAIPAddressFamily, 294
rpki::roa::RouteOriginAttestation, 295
rpki::rpki_engine::child_cert_obj, 311
rpki::rpki_engine::revoked_cert_obj, 315
rpki::rpki_engine::rpkid_context, 318
rpki::sql::session, 322
rpki::sql::template, 331
rpki::up_down::class_elt, 345
rpki::up_down::class_response_- syntax, 349
rpki::up_down::error_response_pdu, 353
rpki::up_down::multi_uri, 367
rpki::x509::DER_object, 393
rpki::x509::PEM_converter, 398
rpki::xml_utils::sax_handler, 438
`__init__.py(1997)`, 445
`__ne__` rpki::resource_set::resource_bag, 254
`__new__` rpki::ipaddrs::v4addr, 156
rpki::ipaddrs::v6addr, 158
`__str__` rpki::ipaddrs::v4addr, 156
rpki::ipaddrs::v6addr, 158
rpki::resource_set::resource_bag, 254
rpki::resource_set::resource_range_- as, 259
rpki::resource_set::resource_range_- ip, 261
rpki::resource_set::resource_set, 267
rpki::resource_set::roa_prefix, 282
rpki::resource_set::roa_prefix_set, 287
rpki::sundial::datetime, 333
rpki::up_down::message_pdu, 364
rpki::up_down::multi_uri, 367
rpki::xml_utils::base_elt, 427
rpki::xml_utils::msg, 435
`__sub__` rpki::sundial::datetime, 333
`_bs2long`

rpkii::resource_set, 30
_comm
 rpkii::resource_set::resource_set, 268
_exceptions_enabled
 rpkii::sql::session, 324
_long2bs
 rpkii::resource_set, 30
_prefixlen
 rpkii::resource_set::resource_range_-
 ip, 261
_rsplit
 rpkii::resource_set, 30
_wrap_execute
 rpkii::sql::session, 322

activate
 rpkii::rpki_engine::ca_detail_obj,
 299

address
 rpkii::resource_set::roa_prefix, 283
 rpkii::roa::ROAIPAddress, 292

addresses
 rpkii::roa::ROAIPAddressFamily,
 294

addressFamily
 rpkii::roa::ROAIPAddressFamily,
 294

afi
 rpkii::resource_set::resource_set_-
 ipv4, 278
 rpkii::resource_set::resource_set_-
 ipv6, 280

argv
 irbe_cli, 6

as_number
 irbe_cli::route_origin_elt, 90
 rpkii::left_right::route_origin_elt,
 202

asID
 rpkii::roa::RouteOriginAttestation,
 296

asn
 rpkii::left_right::list_resources_elt,
 179
 rpkii::resource_set::resource_bag,
 255

 assert_pristine
 rpkii::sql::session, 322

attributes
 rpkii::left_right::bsc_elt, 162
 rpkii::left_right::child_elt, 167
 rpkii::left_right::list_resources_elt,
 179
 rpkii::left_right::parent_elt, 187
 rpkii::left_right::report_error_elt, 190
 rpkii::left_right::repository_elt, 195
 rpkii::left_right::route_origin_elt,
 202
 rpkii::left_right::self_elt, 212
 rpkii::publication::client_elt, 224
 rpkii::publication::config_elt, 231
 rpkii::publication::publication_-
 object_elt, 246
 rpkii::publication::report_error_elt,
 248
 rpkii::xml_utils::base_elt, 428

b
 rpkii::x509::PEM_converter, 399

base_uri
 rpkii::publication::client_elt, 224

BaseHTTPServer::BaseHTTPRequestHandler,
 39

BaseHTTPServer::HTTPServer, 39

bits
 rpkii::ipaddrs::v4addr, 157
 rpkii::ipaddrs::v6addr, 158

booleans
 rpkii::left_right::bsc_elt, 162
 rpkii::left_right::child_elt, 167
 rpkii::left_right::parent_elt, 187
 rpkii::left_right::route_origin_elt,
 203
 rpkii::left_right::self_elt, 212
 rpkii::xml_utils::base_elt, 428

bpkii_cert
 irbe_cli::cmd_elt_mixin, 55
 rpkii::left_right::child_elt, 168
 rpkii::left_right::self_elt, 212
 rpkii::publication::client_elt, 224

bpkii_cms_cert
 irbe_cli::cmd_elt_mixin, 55

rpki::left_right::parent_elt, 187
rpki::left_right::repository_elt, 195

bpkı_cms_glue
 irbe_cli::cmd_elt_mixin, 55
 rpki::left_right::parent_elt, 187
 rpki::left_right::repository_elt, 196

bpkı_crl
 irbe_cli::config_elt, 60

bpkı_glue
 irbe_cli::cmd_elt_mixin, 56
 rpki::left_right::child_elt, 168
 rpki::left_right::self_elt, 212
 rpki::publication::client_elt, 224

bpkı_https_cert
 irbe_cli::cmd_elt_mixin, 56
 rpki::left_right::parent_elt, 187
 rpki::left_right::repository_elt, 196

bpkı_https_glue
 irbe_cli::cmd_elt_mixin, 56
 rpki::left_right::parent_elt, 187
 rpki::left_right::repository_elt, 196

bpkı_ta
 irdbd, 8
 pubd::pubd_context, 98
 rootd, 14
 rpki::rpki_engine::rpkid_context,
 319

bsc
 rpki::left_right::data_elt, 173

bscs
 rpki::left_right::self_elt, 210

build
 rpki::x509::ROA, 405
 rpki::x509::SignedManifest, 414

build_https_ta_cache
 pubd::pubd_context, 97
 rpki::https, 20
 rpki::rpki_engine::rpkid_context,
 318

ca
 rpki::rpki_engine::ca_detail_obj,
 299

ca_cert_uri
 rpki::rpki_engine::ca_detail_obj,
 302

ca_detail
 rpki::left_right::route_origin_elt,
 200

rpki::rpki_engine::child_cert_obj,
 311

rpki::rpki_engine::revoked_cert_obj,
 315

ca_detail_id
 rpki::left_right::route_origin_elt,
 203

rpki::rpki_engine::child_cert_obj,
 312

rpki::rpki_engine::revoked_cert_obj,
 316

ca_details
 rpki::rpki_engine::ca_obj, 305

ca_from_class_name
 rpki::left_right::child_elt, 166

ca_id
 rpki::rpki_engine::ca_detail_obj,
 302

cache
 rpki::sql::session, 324

cache_clear
 rpki::sql::session, 323

calculate_SKI
 rpki::x509, 36

call_daemon
 irbe_cli, 5

call_pubd
 rpki::left_right::repository_elt, 194

cas
 rpki::left_right::parent_elt, 185

cert
 cross_certify, 3
 rpki::left_right::route_origin_elt,
 203

rpki::rpki_engine::child_cert_obj,
 312

rpki::up_down::certificate_elt, 342

cert_url
 rpki::up_down::certificate_elt, 342
 rpki::up_down::class_elt, 346

certs
 rpki::up_down::class_elt, 346

cfg

irbe_cli, 6
irdbd, 8
rootd, 14
cfg_file
 irbe_cli, 6
 irdbd, 9
 pubd, 11
 rootd, 14
 rpkid, 38
characters
 rpki::xml_utils::sax_handler, 438
check_allowed_uri
 rpki::publication::client_elt, 223
check_for_updates
 rpki::rpki_engine::ca_obj, 305
check_response
 rpki::up_down::base_elt, 339
 rpki::up_down::error_response_pdu,
 353
 rpki::up_down::issue_response_pdu,
 359
check_valid_rpki
 rpki::x509::PKCS10, 401
checker
 rpki::https::httpsClient, 152
child
 cross_certify, 3
 rpki::rpki_engine::child_cert_obj,
 311
child_bpki_cert
 rootd, 14
child_certs
 rpki::left_right::child_elt, 166
 rpki::rpki_engine::ca_detail_obj,
 299
child_id
 rpki::rpki_engine::child_cert_obj,
 313
children
 rpki::left_right::bsc_elt, 161
 rpki::left_right::self_elt, 210
class_name
 rpki::up_down::class_elt, 346
 rpki::up_down::issue_pdu, 357
 rpki::up_down::revoke_pdu, 370
 rpki::up_down::revoke_syntax, 374
classes
 rpki::up_down::class_response_
 syntax, 349
clear
 rpki::x509::DER_object, 393
clear_https_ta_cache
 pubd::pubd_context, 97
 rpki::left_right::child_elt, 168
 rpki::publication::client_elt, 224
 rpki::rpki_engine::rpkid_context,
 318
client
 rpki::https, 20
client_cert
 irbe_cli, 6
client_getopt
 irbe_cli::cmd_elt_mixin, 54
client_handler
 pubd::pubd_context, 98
client_key
 irbe_cli, 6
client_poll
 rpki::left_right::self_elt, 210
client_query_as_number
 irbe_cli::route_origin_elt, 90
client_query_bpki_cert
 irbe_cli::cmd_elt_mixin, 54
client_query_bpki_cms_cert
 irbe_cli::cmd_elt_mixin, 54
client_query_bpki_crl
 irbe_cli::config_elt, 60
client_query_bpki_https_cert
 irbe_cli::cmd_elt_mixin, 54
client_query_cms_glue
 irbe_cli::cmd_elt_mixin, 54
client_query_glue
 irbe_cli::cmd_elt_mixin, 55
client_query_https_glue
 irbe_cli::cmd_elt_mixin, 55
client_query_ip4
 irbe_cli::route_origin_elt, 90
client_query_ip6
 irbe_cli::route_origin_elt, 90
client_query_signing_cert
 irbe_cli::bsc_elt, 43
client_query_signing_cert_crl

irbe_cli::bsc_elt, 43
client_reply_decode
 irbe_cli::bsc_elt, 43
 irbe_cli::cmd_elt_mixin, 55
client_reply_show
 irbe_cli::cmd_elt_mixin, 55
client_ta
 irdbd, 9
 rootd, 14
close
 rpki::sql::session, 323
cms_class
 irbe_cli, 6
codes
 rpki::up_down::error_response_pdu,
 354
columns
 rpki::sql::template, 331
compose_response
 rootd, 13
config.py(1873), 445
config_id
 rpki::publication::config_elt, 231
ConfigParser::RawConfigParser, 40
connect
 rpki::sql::session, 323
construct_sia_uri
 rpki::rpki_engine::ca_obj, 306
contains
 rpki::resource_set::resource_set, 268
content
 rpki::x509::CMS_object, 382
 rpki::x509::DER_CMS_object, 389
 rpki::x509::XML_CMS_object, 424
content_class
 rpki::x509::ROA, 405
 rpki::x509::SignedManifest, 414
control_handler
 pubd::pubd_context, 98
convert_to_seconds
 rpki::sundial::timedelta, 337
create
 rpki::rpki_engine::ca_detail_obj,
 299
 rpki::rpki_engine::ca_obj, 306
 rpki::x509::PKCS10, 401
create_ca
 rpki::x509::PKCS10, 401
create_top_level
 rpki::xml_utils::sax_handler, 438
crl_interval
 rpki::left_right::self_elt, 212
crl_uri
 rpki::rpki_engine::ca_detail_obj,
 299
crl_uri_tail
 rpki::rpki_engine::ca_detail_obj,
 299
cronjob_handler
 rpki::rpki_engine::rpkid_context,
 318
cross_certify, 1
 cert, 3
 child, 3
 f, 3
 keypair, 3
 lifetime, 3
 notAfter, 3
 now, 3
 output, 3
 parent, 3
 serial, 3
 serial_file, 4
 usage, 3
 x, 4
cross_certify.py(1995), 445
cur
 irdbd, 9
 rpki::sql::session, 324
database
 rpki::sql::session, 324
datum_type
 rpki::resource_set::resource_range_-
 as, 259
 rpki::resource_set::resource_range_-
 ip4, 263
 rpki::resource_set::resource_range_-
 ip6, 265
db
 irdbd, 9
 rpki::sql::session, 324

debug
 rpki::log, 24
debug_cms_certs
 rpki::x509::CMS_object, 382
debug_tls_certs
 rpki::https, 21
decode
 rpki::x509::DER_CMS_object, 389
 rpki::x509::XML_CMS_object, 423
default_section
 rpki::config::parser, 113
del_subject_cert
 rootd, 13
delete
 rpki::rpki_engine::ca_detail_obj,
 299
 rpki::rpki_engine::ca_obj, 306
 rpki::sql::template, 331
DER
 rpki::x509::CMS_object, 382
 rpki::x509::CRL, 387
 rpki::x509::DER_object, 396
 rpki::x509::PKCS10, 402
 rpki::x509::RSA, 409
 rpki::x509::RSAPublic, 412
 rpki::x509::X509, 419
description
 rpki::up_down::error_response_pdu,
 354
difference
 rpki::resource_set::resource_set, 268
dirty
 rpki::sql::session, 324
disable_tls_certificate_validation_-
 exceptions
 rpki::https, 21
do_POST
 rpki::https::requestHandler, 155
dump_inbound_cms
 rpki::x509::XML_CMS_object, 424
dump_on_verify_failure
 rpki::x509::CMS_object, 382
dump_outbound_cms
 rpki::x509::XML_CMS_object, 425
dump_to_disk
 rpki::x509::XML_CMS_object, 423
dumpasn1
 rpki::x509::DER_object, 393
dynamic_https_trust_anchor
 rpki::https::Checker, 151
e
 rpki::x509::PEM_converter, 399
earlier
 rpki::sundial::datetime, 334
econtent_oid
 rpki::x509::CMS_object, 382
 rpki::x509::ROA, 405
 rpki::x509::SignedManifest, 414
 rpki::x509::XML_CMS_object, 425
ee_uri
 rpki::left_right::route_origin_elt,
 200
ee_uri_tail
 rpki::left_right::route_origin_elt,
 200
element_name
 rpki::left_right::bsc_elt, 162
 rpki::left_right::child_elt, 168
 rpki::left_right::list_resources_elt,
 179
 rpki::left_right::parent_elt, 187
 rpki::left_right::report_error_elt, 190
 rpki::left_right::repository_elt, 196
 rpki::left_right::route_origin_elt,
 203
 rpki::left_right::self_elt, 212
 rpki::publication::certificate_elt, 220
 rpki::publication::client_elt, 225
 rpki::publication::config_elt, 231
 rpki::publication::crl_elt, 237
 rpki::publication::manifest_elt, 239
 rpki::publication::report_error_elt,
 248
 rpki::publication::roa_elt, 250
elements
 rpki::left_right::bsc_elt, 162
 rpki::left_right::child_elt, 168
 rpki::left_right::parent_elt, 187
 rpki::left_right::repository_elt, 196
 rpki::left_right::self_elt, 213
 rpki::publication::client_elt, 225

rpki::publication::config_elt, 231
rpki::xml_utils::base_elt, 429
empty
 rpki::resource_set::resource_bag, 254
 rpki::x509::DER_object, 393
enable_trace
 rpki::log, 24
encode
 rpki::x509::DER_CMS_object, 389
 rpki::x509::XML_CMS_object, 423
encoding
 rpki::left_right::cms_msg, 170
 rpki::publication::cms_msg, 227
 rpki::up_down::cms_msg, 351
EndElement
 rpki::left_right::child_elt, 167
 rpki::publication::client_elt, 223
 rpki::publication::publication_object_elt, 245
 rpki::up_down::base_elt, 339
 rpki::up_down::certificate_elt, 342
 rpki::up_down::class_elt, 345
 rpki::up_down::error_response_pdu, 353
 rpki::up_down::issue_pdu, 356
 rpki::xml_utils::base_elt, 427
 rpki::xml_utils::data_elt, 431
 rpki::xml_utils::msg, 435
 rpki::xml_utils::sax_handler, 439
EndElementNS
 rpki::xml_utils::sax_handler, 439
enforce_strict_up_down_xml_sender
 rpki::left_right, 22
error
 rpki::log, 24
error_code
 rpki::left_right::report_error_elt, 190
 rpki::publication::report_error_elt, 248
Exception, 40
exceptions
 rpki::up_down::error_response_pdu, 354
exceptions.py(1873), 446
excludes
 irbe_cli::bsc_elt, 44
 irbe_cli::cmd_elt_mixin, 56
execute
 rpki::sql::session, 323
executemany
 rpki::sql::session, 323
expires
 rpki::rpki_engine::revoked_cert_obj, 316
explicitVersion
 rpki::manifest::Manifest, 218
 rpki::roa::RouteOriginAttestation, 296
f
 cross_certify, 3
fetch
 rpki::publication::config_elt, 230
 rpki::rpki_engine::child_cert_obj, 311
fetch_active
 rpki::rpki_engine::ca_obj, 306
fetch_DEPRECATED
 rpki::rpki_engine::ca_obj, 306
fetch_pending
 rpki::rpki_engine::ca_obj, 307
fetch_revoked
 rpki::rpki_engine::ca_obj, 307
fetchall
 rpki::sql::session, 323
file
 rpki::manifest::FileAndHash, 216
fileHashAlg
 rpki::manifest::Manifest, 218
fileList
 rpki::manifest::Manifest, 218
formats
 rpki::x509::CMS_object, 383
 rpki::x509::CRL, 387
 rpki::x509::DER_object, 396
 rpki::x509::PKCS10, 402
 rpki::x509::RSA, 409
 rpki::x509::RSAPublic, 412
 rpki::x509::X509, 419
from_exception
 rpki::left_right::report_error_elt, 190

rpkii::publication::report_error_elt,
248
from_resource_bag
 rpkii::up_down::class_elt, 345
from_rfc3779_tuples
 rpkii::resource_set::resource_bag,
 254
from_sql
 rpkii::resource_set::resource_set, 268
 rpkii::resource_set::roa_prefix_set,
 287
 rpkii::sundial::datetime, 334
 rpkii::x509::DER_object, 393
fromASN1tuple
 rpkii::sundial::datetime, 334
fromdatetime
 rpkii::sundial::datetime, 334
fromGeneralizedTime
 rpkii::sundial::datetime, 334
fromUTCTime
 rpkii::sundial::datetime, 334
fromXMLtime
 rpkii::sundial::datetime, 334

gAKI
 rpkii::x509::DER_object, 394
gctx
 rpkii::rpki_engine::ca_detail_obj,
 302
 rpkii::rpki_engine::ca_obj, 308
 rpkii::rpki_engine::child_cert_obj,
 313
 rpkii::rpki_engine::revoked_cert_obj,
 316
 rpkii::sql::sql_persistent, 329
generate
 rpkii::x509::CRL, 385
 rpkii::x509::RSA, 407
generate_crl
 rpkii::rpki_engine::ca_detail_obj,
 300
generate_manifest
 rpkii::rpki_engine::ca_detail_obj,
 300
generate_manifest_cert
 rpkii::rpki_engine::ca_detail_obj,
 300
 rpkii::rpki_engine::ca_detail_obj,
 300
generate_roa
 rpkii::left_right::route_origin_elt,
 200
get
 rpkii::config::parser, 113
get_3779resources
 rpkii::x509::DER_object, 394
get_AIA
 rpkii::x509::DER_object, 394
get_AKI
 rpkii::x509::DER_object, 394
get_Base64
 rpkii::x509::DER_object, 394
get_basicConstraints
 rpkii::x509::DER_object, 394
get_content
 rpkii::x509::CMS_object, 381
get_DER
 rpkii::x509::CMS_object, 381
 rpkii::x509::CRL, 385
 rpkii::x509::DER_object, 394
 rpkii::x509::PKCS10, 402
 rpkii::x509::RSA, 407
 rpkii::x509::RSAPublic, 411
 rpkii::x509::X509, 417
get_PEM
 rpkii::x509::DER_object, 395
get_POW
 rpkii::x509::CMS_object, 381
 rpkii::x509::CRL, 386
 rpkii::x509::RSA, 408
 rpkii::x509::RSAPublic, 411
 rpkii::x509::X509, 418
get_POWpkix
 rpkii::x509::CRL, 386
 rpkii::x509::PKCS10, 402
 rpkii::x509::X509, 418
get_public_DER
 rpkii::x509::RSA, 408
get_RSAPublic
 rpkii::x509::RSA, 408
get_SIA
 rpkii::x509::DER_object, 395
get_SKI

rpkii::up_down::revoke_pdu, 370
rpkii::x509::DER_object, 395
rpkii::x509::RSA, 408
rpkii::x509::RSAPublic, 411
get_subject_cert
 rootd, 13
get_tslite
 rpkii::x509::RSA, 408
 rpkii::x509::X509, 418
getIssuer
 rpkii::x509::CRL, 386
 rpkii::x509::X509, 418
getNextUpdate
 rpkii::x509::CRL, 386
 rpkii::x509::SignedManifest, 414
getNotAfter
 rpkii::x509::X509, 418
getNotBefore
 rpkii::x509::X509, 418
getPublicKey
 rpkii::x509::PKCS10, 402
 rpkii::x509::X509, 418
getSerial
 rpkii::x509::X509, 419
getSubject
 rpkii::x509::X509, 419
getThisUpdate
 rpkii::x509::CRL, 386
 rpkii::x509::SignedManifest, 414
gSKI
 rpkii::x509::DER_object, 395
hAKI
 rpkii::x509::DER_object, 395
handler
 irdbd, 8
handler_common
 pubd::pubd_context, 98
handlers
 irdbd, 9
 rootd, 14
handshake
 rpkii::https::httpsServer, 153
hash
 rpkii::manifest::FileAndHash, 216
host
 irbe_cli::route_origin_elt, 90
 irdbd, 9
 rootd, 14
hSKI
 rpkii::x509::DER_object, 395
https.py(1873), 447
https_server_host
 pubd::pubd_context, 98
 rootd, 14
 rpkii::rpki_engine::rpkid_context, 319
https_server_port
 pubd::pubd_context, 98
 rootd, 14
 rpkii::rpki_engine::rpkid_context, 319
https_ta_cache
 pubd::pubd_context, 98
 rpkii::rpki_engine::rpkid_context, 319
index
 rpkii::sql::template, 331
info
 rpkii::log, 24
inherit
 rpkii::resource_set::resource_set, 269
 rpkii::resource_set::resource_set_as, 272
 rpkii::resource_set::resource_set_ip, 276
inherit_token
 rpkii::resource_set, 31
init
 rpkii::log, 23
insert
 rpkii::sql::template, 331
intersection
 rpkii::resource_set::resource_bag, 254
 rpkii::resource_set::resource_set, 268
ipAddrBlocks
 rpkii::roa::RouteOriginAttestation, 296
ipaddrs.py(1873), 447
ipv4
 irbe_cli::route_origin_elt, 90

rpkii::left_right::list_resources_elt,
179
rpkii::left_right::route_origin_elt,
203
ipv6
 irbe_cli::route_origin_elt, 91
 rpkii::left_right::list_resources_elt,
 179
 rpkii::left_right::route_origin_elt,
 203
irbe_cert
 pubd::pubd_context, 98
 rpkii::rpki_engine::rpkid_context,
 320
irbe_cli, 4
 argv, 6
 call_daemon, 5
 cfg, 6
 cfg_file, 6
 client_cert, 6
 client_key, 6
 cms_class, 6
 pem_out, 6
 q_msg, 6
 q_msg_left_right, 6
 q_msg_publication, 6
 q_pdu, 7
 server_ta, 7
 top_opts, 7
 url, 7
 usage, 5
 usage_fill, 7
 verbose, 7
irbe_cli.py(1995), 447
irbe_cli::bsc_elt, 42
 client_query_signing_cert, 43
 client_query_signing_cert_crl, 43
 client_reply_decode, 43
 excludes, 44
 signing_cert, 44
 signing_cert_crl, 44
irbe_cli::certificate_elt, 46
irbe_cli::child_elt, 49
irbe_cli::client_elt, 52
irbe_cli::cmd_elt_mixin, 53
 bpki_cert, 55
bpki_cms_cert, 55
bpki_cms_glue, 55
bpki_glue, 56
bpki_https_cert, 56
bpki_https_glue, 56
client_getopt, 54
client_query_bpki_cert, 54
client_query_bpki_cms_cert, 54
client_query_bpki_https_cert, 54
client_query_cms_glue, 54
client_query_glue, 55
client_query_https_glue, 55
client_reply_decode, 55
client_reply_show, 55
excludes, 56
usage, 55
irbe_cli::cmd_msg_mixin, 57
 usage, 57
irbe_cli::config_elt, 59
 bpki_crl, 60
 client_query_bpki_crl, 60
irbe_cli::crl_elt, 62
irbe_cli::left_right_cms_msg, 64
 saxify, 65
irbe_cli::left_right_msg, 66
 pdus, 67
irbe_cli::left_right_sax_handler, 68
 pdu, 69
irbe_cli::manifest_elt, 71
irbe_cli::parent_elt, 74
irbe_cli::publication_cms_msg, 76
 saxify, 77
irbe_cli::publication_msg, 78
 pdus, 79
irbe_cli::publication_sax_handler, 80
 pdu, 81
irbe_cli::repository_elt, 83
irbe_cli::roa_elt, 86
irbe_cli::route_origin_elt, 89
 as_number, 90
 client_query_as_number, 90
 client_query_ip4, 90
 client_query_ip6, 90
 ip4, 90
 ip6, 91
irbe_cli::self_elt, 93

irbe_cli::UsageWrapper, 94
 __call__, 94

irdb_cert
 rpki::rpki_engine::rpkid_context,
 320

irdb_query
 rpki::rpki_engine::rpkid_context,
 318

irdb_url
 rpki::rpki_engine::rpkid_context,
 320

irdbd, 7
 bpki_ta, 8
 cfg, 8
 cfg_file, 9
 client_ta, 9
 cur, 9
 db, 9
 handler, 8
 handlers, 9
 host, 9
 irdbd_cert, 9
 irdbd_key, 9
 port, 9
 rpkid_cert, 10
 server_cert, 10
 startup_msg, 10
 u, 10

irdbd.py(1880), 449

irdbd_cert
 irdbd, 9

irdbd_key
 irdbd, 9

is_CA
 rpki::x509::DER_object, 396

issubset
 rpki::resource_set::resource_set, 269

issue
 rpki::rpki_engine::ca_detail_obj,
 300

 rpki::x509::X509, 419

issue_ee
 rpki::rpki_engine::ca_detail_obj,
 300

issuer
 rpki::up_down::class_elt, 346

issuperset
 rpki::resource_set::resource_set, 269

keypair
 cross_certify, 3

last_crl_sn
 rpki::rpki_engine::ca_obj, 308

last_issued_sn
 rpki::rpki_engine::ca_obj, 308

last_manifest_sn
 rpki::rpki_engine::ca_obj, 308

lastrowid
 rpki::sql::session, 323

later
 rpki::sundial::datetime, 335

latest_ca_cert
 rpki::rpki_engine::ca_detail_obj,
 302

latest_crl
 rpki::rpki_engine::ca_detail_obj,
 302

latest_manifest
 rpki::rpki_engine::ca_detail_obj,
 302

latest_manifest_cert
 rpki::rpki_engine::ca_detail_obj,
 302

left_right
 rpki::relaxng, 28

left_right.py(1987), 449

left_right_handler
 rpki::rpki_engine::rpkid_context,
 319

lifetime
 cross_certify, 3

list, 95

log.py(1873), 450

log_message
 rpki::https::requestHandler, 155

long, 95

looks_like_PEM
 rpki::x509::PEM_converter, 398

main
 pubd, 11

rpkid, 38
make_b64elt
 rpki::up_down::base_elt, 339
 rpki::xml_utils::base_elt, 427
make_elt
 rpki::up_down::base_elt, 339
 rpki::xml_utils::base_elt, 427
make_pdu
 rpki::xml_utils::base_elt, 427
make_prefix
 rpki::resource_set::resource_range_ip, 261
make_query
 rpki::up_down::message_pdu, 364
make_reply
 rpki::xml_utils::data_elt, 431
make_reply_clone_hook
 rpki::left_right::data_elt, 173
 rpki::xml_utils::data_elt, 431
manifest.py(1873), 451
manifest_private_key_id
 rpki::rpki_engine::ca_detail_obj, 302
manifest_public_key
 rpki::rpki_engine::ca_detail_obj, 302
manifest_uri
 rpki::rpki_engine::ca_detail_obj, 300
manifestNumber
 rpki::manifest::Manifest, 218
map
 rpki::sql::template, 331
max
 rpki::resource_set::resource_range, 257
 rpki::resource_set::roa_prefix, 282
max_prefixlen
 rpki::resource_set::roa_prefix, 283
maxLength
 rpki::roa::ROAIPAddress, 292
min
 rpki::resource_set::resource_range, 257
 rpki::resource_set::resource_range_as, 259
rpki::resource_set::roa_prefix, 282
multiget
 rpki::config::parser, 113
name
 rpki::left_right::sax_handler, 206
 rpki::publication::sax_handler, 252
 rpki::up_down::sax_handler, 377
name2oid
 rpki::oids, 26
name2type
 rootd::message_pdu, 108
 rpki::up_down::message_pdu, 365
next_crl_number
 rpki::rpki_engine::ca_obj, 307
next_manifest_number
 rpki::rpki_engine::ca_obj, 307
next_serial_number
 rpki::rpki_engine::ca_obj, 307
nextUpdate
 rpki::manifest::Manifest, 218
normalize_chain
 rpki::x509::X509, 419
notAfter
 cross_certify, 3
note
 rpki::log, 24
now
 cross_certify, 3
 rpki::sundial, 34
nsmap
 rpki::left_right::left_right_namespace, 176
 rpki::publication::publication_namespace, 243
 rpki::up_down, 35
obj2elt
 rpki::publication, 28
object, 96
object_delete
 rpki::left_right::repository_elt, 194
object_write
 rpki::left_right::repository_elt, 195
oid2name
 rpki::oids, 26

oids.py(1898), [451](#)
other_clear
 rpkii::x509::CMS_object, [383](#)
 rpkii::x509::DER_object, [397](#)
output
 cross_certify, [3](#)
oversized
 rpkii::resource_set::resource_bag,
 [255](#)

parent
 cross_certify, [3](#)
 rpkii::rpki_engine::ca_obj, [307](#)
parent_id
 rpkii::rpki_engine::ca_obj, [308](#)
parent_resource_class
 rpkii::rpki_engine::ca_obj, [308](#)
parents
 rpkii::left_right::bsc_elt, [161](#)
 rpkii::left_right::child_elt, [167](#)
 rpkii::left_right::repository_elt, [195](#)
 rpkii::left_right::self_elt, [210](#)
parse
 rpkii::sundial::timedelta, [337](#)
parse_rfc3779_tuple
 rpkii::resource_set::resource_set_as,
 [271](#)
 rpkii::resource_set::resource_set_ip,
 [275](#)
parse_str
 rpkii::resource_set::resource_set_as,
 [271](#)
 rpkii::resource_set::resource_set_ip,
 [275](#)
 rpkii::resource_set::roa_prefix_set,
 [287](#)
password
 rpkii::sql::session, [324](#)
payload
 rpkii::publication::publication_-
 object_elt, [246](#)
 rpkii::up_down::message_pdu, [365](#)
payload_type
 rpkii::publication::certificate_elt, [220](#)
 rpkii::publication::crl_elt, [237](#)
 rpkii::publication::manifest_elt, [239](#)

pdu
 rpkii::publication::roa_elt, [250](#)

pdus
 irbe_cli::left_right_sax_handler, [69](#)
 irbe_cli::publication_sax_handler,
 [81](#)
 rootd::sax_handler, [112](#)
 rpkii::left_right::sax_handler, [206](#)
 rpkii::publication::sax_handler, [252](#)
 rpkii::up_down::sax_handler, [377](#)

pem_converter
 rpkii::x509::CMS_object, [383](#)
 rpkii::x509::CRL, [387](#)
 rpkii::x509::DER_object, [397](#)
 rpkii::x509::PKCS10, [402](#)
 rpkii::x509::ROA, [405](#)
 rpkii::x509::RSA, [409](#)
 rpkii::x509::RSAPublic, [412](#)
 rpkii::x509::SignedManifest, [415](#)
 rpkii::x509::X509, [420](#)
pem_dump_tls_certs
 rpkii::https::Checker, [151](#)
pem_out
 irbe_cli, [6](#)
ping
 rpkii::sql::session, [323](#)
pkcs10
 rpkii::up_down::issue_pdu, [357](#)
pkcs10_request
 rpkii::left_right::bsc_elt, [163](#)
PKIX_threshold
 rpkii::sundial::datetime, [336](#)
port
 irdbd, [9](#)
 rootd, [14](#)
POW
 rpkii::x509::CMS_object, [383](#)
 rpkii::x509::CRL, [387](#)
 rpkii::x509::RSA, [409](#)
 rpkii::x509::RSAPublic, [412](#)
 rpkii::x509::X509, [420](#)
POWify_OID

rpkii::x509, 37
POWpkix
 rpkii::x509::CRL, 387
 rpkii::x509::PKCS10, 403
 rpkii::x509::X509, 420
prefix_type
 rpkii::resource_set::roa_prefix_set_-
 ipv4, 289
 rpkii::resource_set::roa_prefix_set_-
 ipv6, 290
prefixlen
 rpkii::resource_set::roa_prefix, 283
pretty_print_content
 rpkii::x509::XML_CMS_object, 424
print_on_der_error
 rpkii::x509::CMS_object, 383
priority
 rpkii::log::logger, 215
private_key_id
 rpkii::left_right::bsc_elt, 163
 rpkii::rpki_engine::ca_detail_obj,
 303
profile
 pubbd, 11
 rpkid, 38
pubd, 10
 cfg_file, 11
 main, 11
 profile, 11
pubd.py(1880), 451
pubd::pubd_context, 96
 __init__, 97
 bpki_ta, 98
 build_https_ta_cache, 97
 clear_https_ta_cache, 97
 client_handler, 98
 control_handler, 98
 handler_common, 98
 https_server_host, 98
 https_server_port, 98
 https_ta_cache, 98
 irbe_cert, 98
 pubd_cert, 99
 pubd_key, 99
 publication_base, 99
 sql, 99
pubd_cert
 pubd::pubd_context, 99
pubd_key
 pubd::pubd_context, 99
public_key
 rpki::rpki_engine::ca_detail_obj,
 303
publication
 rpki::relaxng, 28
publication.py(1914), 452
publication_base
 pubd::pubd_context, 99
publication_kludge_base
 rpki::rpki_engine::rpkid_context,
 320
publish
 rpki::left_right::repository_elt, 195
publish_ee_separately
 rpki::left_right::route_origin_elt,
 203
pydatetime::datetime, 100
pydatetime::timedelta, 100
q_msg
 irbe_cli, 6
q_msg_left_right
 irbe_cli, 6
q_msg_publication
 irbe_cli, 6
q_pdu
 irbe_cli, 7
query
 rpki::up_down::issue_pdu, 356
 rpki::up_down::list_pdu, 361
 rpki::up_down::revoke_pdu, 370
query_up_down
 rpki::left_right::parent_elt, 185
range_type
 rpki::resource_set::resource_set_as,
 272
 rpki::resource_set::resource_set_-
 ipv4, 278
 rpki::resource_set::resource_set_-
 ipv6, 280

rpki::resource_set::roa_prefix_ipv4, 284
rpki::resource_set::roa_prefix_ipv6, 286
read_attrs
 rpki::xml_utils::base_elt, 428
recipient
 rpki::up_down::message_pdu, 366
refuse_tls_ca_certs
 rpki::https::Checker, 151
regen_margin
 rpki::left_right::self_elt, 213
regenerate_crls_and_manifests
 rpki::left_right::self_elt, 210
regenerate_roa
 rpki::left_right::route_origin_elt, 200
regexp
 rpki::sundial::timedelta, 337
reissue
 rpki::rpki_engine::child_cert_obj, 312
rekey
 rpki::rpki_engine::ca_obj, 307
relaxng.py(1838), 453
repositories
 rpki::left_right::bsc_elt, 162
 rpki::left_right::self_elt, 210
repository
 rpki::left_right::parent_elt, 186
req_resource_set_as
 rpki::up_down::certificate_elt, 343
 rpki::up_down::issue_pdu, 357
req_resource_set_ipv4
 rpki::up_down::certificate_elt, 343
 rpki::up_down::issue_pdu, 357
req_resource_set_ipv6
 rpki::up_down::certificate_elt, 343
 rpki::up_down::issue_pdu, 357
require_crls
 rpki::x509::CMS_object, 383
resource_set.py(1984), 453
resource_set_as
 rpki::up_down::class_elt, 346
resource_set_ipv4
 rpki::up_down::class_elt, 347
resource_set_ipv6
 rpki::up_down::class_elt, 347
resource_set_notafter
 rpki::up_down::class_elt, 347
resource_set_type
 rpki::resource_set::roa_prefix_set_ipv4, 289
 rpki::resource_set::roa_prefix_set_ipv6, 290
result
 rpki::xml_utils::sax_handler, 440
revoke
 rpki::rpki_engine::ca_detail_obj, 301
 rpki::rpki_engine::ca_obj, 308
 rpki::rpki_engine::child_cert_obj, 312
 rpki::rpki_engine::revoked_cert_obj, 315
revoked
 rpki::rpki_engine::revoked_cert_obj, 316
revoked_certs
 rpki::rpki_engine::ca_detail_obj, 301
roa
 rpki::left_right::route_origin_elt, 203
roa.py(1975), 454
roa_uri
 rpki::left_right::route_origin_elt, 201
roa_uri_tail
 rpki::left_right::route_origin_elt, 201
rootd, 11
 bpki_ta, 14
 cfg, 14
 cfg_file, 14
 child_bpki_cert, 14
 client_ta, 14
 compose_response, 13
 del_subject_cert, 13
 get_subject_cert, 13
 handlers, 14
 host, 14

https_server_host, 14
https_server_port, 14
port, 14
rootd_bpki_cert, 15
rootd_bpki_crl, 15
rootd_bpki_key, 15
rpki_base_uri, 15
rpki_class_name, 15
rpki_root_cert, 15
rpki_root_cert_uri, 15
rpki_root_crl, 15
rpki_root_dir, 15
rpki_root_key, 16
rpki_root_manifest, 16
rpki_subject_cert, 16
rpki_subject_lifetime, 16
rpki_subject_pkcs10, 16
server_cert, 16
set_subject_cert, 13
stash_subject_pkcs10, 13
up_down_handler, 13
rootd.py(1974), 454
rootd::cms_msg, 101
 saxify, 102
rootd::issue_pdu, 103
 serve_pdu, 104
rootd::list_pdu, 105
 serve_pdu, 106
rootd::message_pdu, 107
 name2type, 108
 type2name, 108
rootd::revoke_pdu, 109
 serve_pdu, 110
rootd::sax_handler, 111
 pdu, 112
rootd_bpki_cert
 rootd, 15
rootd_bpki_crl
 rootd, 15
rootd_bpki_key
 rootd, 15
route_origins
 rpki::left_right::self_elt, 210
 rpki::rpki_engine::ca_detail_obj,
 301
rpki, 16
rpki.config, 17
rpki.exceptions, 17
rpki.https, 19
rpki.ipaddrs, 21
rpki.left_right, 22
rpki.log, 23
rpki.manifest, 25
rpki.oids, 25
rpki.publication, 27
rpki.relaxng, 28
rpki.resource_set, 29
rpki.roa, 31
rpki.rpki_engine, 32
rpki.sql, 33
rpki.sundial, 33
rpki.up_down, 34
rpki.x509, 35
rpki.xml_utils, 37
rpki::config::parser, 112
 __init__, 113
 default_section, 113
 get, 113
 multiget, 113
rpki::exceptions::BadClassNameSyntax,
 114
rpki::exceptions::BadContactURL, 115
rpki::exceptions::BadIRDBReply, 116
rpki::exceptions::BadIssueResponse, 117
rpki::exceptions::BadPKCS10, 118
rpki::exceptions::BadQuery, 119
rpki::exceptions::BadSender, 120
rpki::exceptions::BadStatusCode, 121
rpki::exceptions::BadURISyntax, 122
rpki::exceptions::BSCNotFound, 123
rpki::exceptions::ChildNotFound, 124
rpki::exceptions::ClassNameMismatch,
 125
rpki::exceptions::CMSCRLNotSet, 126
rpki::exceptions::CMSVerificationFailed,
 127
rpki::exceptions::DBConsistencyError,
 128
rpki::exceptions::DERObjectConversionError,
 129
rpki::exceptions::EmptyPEM, 130

rpki::exceptions::HTTPRequestFailed, 131
rpki::exceptions::MissingCMSCRL, 132
rpki::exceptions::MissingCMSEcert, 133
rpki::exceptions::MultipleTLSEECert, 134
rpki::exceptions::MustBePrefix, 135
rpki::exceptions::NotACertificateChain, 136
rpki::exceptions::NotFound, 137
rpki::exceptions::NotImplementedYet, 138
rpki::exceptions::NotInDatabase, 139
rpki::exceptions::ReceivedTLSACert, 140
rpki::exceptions::RPKI_Exception, 140
rpki::exceptions::ServerShuttingDown, 141
rpki::exceptions::SKIMismatch, 142
rpki::exceptions::SubprocessError, 143
rpki::exceptions::TLSValidationError, 144
rpki::exceptions::UnexpectedCMSCerts, 145
rpki::exceptions::UnexpectedCMSCRLs, 146
rpki::exceptions::UnparseableCMSDER, 147
rpki::exceptions::UpstreamError, 148
rpki::exceptions::WrongEContentType, 149
rpki::https
 build_https_ta_cache, 20
 client, 20
 debug_tls_certs, 21
 disable_tls_certificate_validation_exceptions, 21
 rpki_content_type, 21
 server, 20
 tlslite_certChain, 20
rpki::https::Checker, 149
 __call__, 150
 __init__, 150
 dynamic_https_trust_anchor, 151
 pem_dump_tls_certs, 151
 refuse_tls_ca_certs, 151
 x509store, 151
 x509store_thunk, 150
 rpki::https::httpsClient, 151
 __init__, 152
 checker, 152
 rpki::https::httpsServer, 153
 handshake, 153
 rpki_checker, 154
 rpki_server_cert, 154
 rpki_server_key, 154
 rpki_sessionCache, 154
 rpki::https::requestHandler, 154
 do_POST, 155
 log_message, 155
 rpki_find_handler, 155
 rpki_handlers, 155
 rpki::ipaddrs::v4addr, 156
 __new__, 156
 __str__, 156
 bits, 157
 rpki::ipaddrs::v6addr, 157
 __new__, 158
 __str__, 158
 bits, 158
 rpki::left_right
 enforce_strict_up_down_xml_sender, 22
 rpki::left_right::bsc_elt, 160
 attributes, 162
 booleans, 162
 children, 161
 element_name, 162
 elements, 162
 parents, 161
 pkcs10_request, 163
 private_key_id, 163
 repositories, 162
 serve_pre_save_hook, 162
 signing_cert, 163
 signing_cert_crl, 163
 sql_template, 163
 rpki::left_right::child_elt, 165
 attributes, 167
 booleans, 167
 bpki_cert, 168

bpkiglue, 168
ca_from_class_name, 166
child_certs, 166
clear_https_ta_cache, 168
element_name, 168
elements, 168
endElement, 167
parents, 167
serve_post_save_hook, 167
serve_up_down, 167
sql_template, 168
rpki::left_right::cms_msg, 169
encoding, 170
saxify, 170
schema, 170
rpki::left_right::data_elt, 172
bsc, 173
make_reply_clone_hook, 173
self, 173
serve_fetch_all, 173
serve_fetch_one, 173
unimplemented_control, 174
rpki::left_right::left_right_namespace,
 175
nsmap, 176
xmlns, 176
rpki::left_right::list_resources_elt, 177
asn, 179
attributes, 179
element_name, 179
ipv4, 179
ipv6, 179
startElement, 178
toXML, 178
valid_until, 179
rpki::left_right::msg, 180
pdus, 181
serve_top_level, 181
version, 181
rpki::left_right::parent_elt, 184
attributes, 187
booleans, 187
bpkicmscert, 187
bpkicmsglue, 187
bpkihsscert, 187
bpkihsglue, 187
cas, 185
element_name, 187
elements, 187
query_up_down, 185
repository, 186
serve_post_save_hook, 186
serve_rekey, 186
serve_revoke, 186
sql_template, 188
rpki::left_right::report_error_elt, 189
attributes, 190
element_name, 190
error_code, 190
from_exception, 190
self_id, 191
rpki::left_right::repository_elt, 193
attributes, 195
bpkicmscert, 195
bpkicmsglue, 196
bpkihsscert, 196
bpkihsglue, 196
call_pubd, 194
element_name, 196
elements, 196
object_delete, 194
object_write, 195
parents, 195
publish, 195
sql_template, 196
uri_to_filename, 195
use_pubd, 196
withdraw, 195
rpki::left_right::route_origin_elt, 198
as_number, 202
attributes, 202
booleans, 203
ca_detail, 200
ca_detail_id, 203
cert, 203
ee_uri, 200
ee_uri_tail, 200
element_name, 203
generate_roa, 200
ipv4, 203
ipv6, 203
publish_ee_separately, 203

regenerate_roa, 200
roa, 203
roa_uri, 201
roa_uri_tail, 201
serve_post_save_hook, 201
sql_delete_hook, 201
sql_fetch_hook, 201
sql_insert_hook, 201
sql_template, 204
startElement, 202
update_roa, 202
withdraw_roa, 202
rpki::left_right::sax_handler, 205
 name, 206
 pdu, 206
 version, 206
rpki::left_right::self_elt, 208
 attributes, 212
 booleans, 212
 bpki_cert, 212
 bpki_glue, 212
 bscs, 210
 children, 210
 client_poll, 210
 crl_interval, 212
 element_name, 212
 elements, 213
 parents, 210
 regen_margin, 213
 regenerate_crls_and_manifests, 210
 repositories, 210
 route_origins, 210
 self_id, 213
 serve_fetch_all, 211
 serve_fetch_one, 211
 serve_post_save_hook, 211
 serve_rekey, 211
 serve_revoke, 211
 sql_template, 213
 update_children, 211
 update_ropas, 212
 use_hsm, 213
rpki::log
 debug, 24
 enable_trace, 24
 error, 24
 info, 24
 init, 23
 note, 24
 set_trace, 24
 trace, 24
 warn, 24
rpki::log::logger, 214
 __call__, 214
 __init__, 214
 priority, 215
rpki::manifest::FileAndHash, 215
 __init__, 215
 file, 216
 hash, 216
rpki::manifest::FilesAndHashes, 216
 __init__, 216
rpki::manifest::Manifest, 217
 __init__, 217
 explicitVersion, 218
 fileHashAlg, 218
 fileList, 218
 manifestNumber, 218
 nextUpdate, 218
 thisUpdate, 218
 version, 218
rpki::oids
 name2oid, 26
 oid2name, 26
rpki::publication
 obj2elt, 28
rpki::publication::certificate_elt, 219
 element_name, 220
 payload_type, 220
rpki::publication::client_elt, 222
 attributes, 224
 base_uri, 224
 bpki_cert, 224
 bpki_glue, 224
 check_allowed_uri, 223
 clear_https_ta_cache, 224
 element_name, 225
 elements, 225
 endElement, 223
 serve_fetch_all, 223
 serve_fetch_one, 224
 serve_post_save_hook, 224

sql_template, 225
rpki::publication::cms_msg, 226
 encoding, 227
 saxify, 227
 schema, 227
rpki::publication::config_elt, 229
 attributes, 231
 config_id, 231
 element_name, 231
 elements, 231
 fetch, 230
 serve_fetch_one, 230
 serve_set, 231
 sql_template, 232
 startElement, 231
 wired_in_config_id, 232
rpki::publication::control_elt, 234
 serve_dispatch, 235
rpki::publication::crl_elt, 236
 element_name, 237
 payload_type, 237
rpki::publication::manifest_elt, 238
 element_name, 239
 payload_type, 239
rpki::publication::msg, 240
 pdus, 241
 serve_top_level, 241
 version, 241
rpki::publication::publication_-
 namespace, 242
 nsmap, 243
 xmlns, 243
rpki::publication::publication_object_elt,
 244
 attributes, 246
 endElement, 245
 payload, 246
 serve_dispatch, 245
 serve_publish, 245
 serve_withdraw, 246
 toXML, 246
 uri_to_filename, 246
rpki::publication::report_error_elt, 247
 attributes, 248
 element_name, 248
 error_code, 248
 from_exception, 248
rpki::publication::roa_elt, 249
 element_name, 250
 payload_type, 250
rpki::publication::sax_handler, 251
 name, 252
 pdu, 252
 version, 252
rpki::relaxng
 left_right, 28
 publication, 28
 up_down, 28
rpki::resource_set
 _bs2long, 30
 _long2bs, 30
 _rsplit, 30
 inherit_token, 31
 test1, 30
 test2, 31
rpki::resource_set::resource_bag, 253
 __eq__, 254
 __init__, 254
 __ne__, 254
 __str__, 254
 asn, 255
 empty, 254
 from_rfc3779_tuples, 254
 intersection, 254
 oversized, 255
 undersized, 255
 union, 255
 v4, 255
 v6, 255
 valid_until, 255
rpki::resource_set::resource_range, 256
 __cmp__, 257
 __init__, 257
 max, 257
 min, 257
rpki::resource_set::resource_range_as,
 258
 __str__, 259
 datum_type, 259
 min, 259
 to_rfc3779_tuple, 259

rpki::resource_set::resource_range_ip,
 260
 __str__, 261
 _prefixlen, 261
 make_prefix, 261
 to_rfc3779_tuple, 261
rpki::resource_set::resource_range_ipv4,
 262
 datum_type, 263
rpki::resource_set::resource_range_ipv6,
 264
 datum_type, 265
rpki::resource_set::resource_set, 266
 __init__, 267
 __str__, 267
 _comm, 268
 contains, 268
 difference, 268
 from_sql, 268
 inherit, 269
 intersection, 268
 issubset, 269
 issuperset, 269
 symmetric_difference, 269
 union, 269
rpki::resource_set::resource_set_as, 270
 inherit, 272
 parse_rfc3779_tuple, 271
 parse_str, 271
 range_type, 272
 to_rfc3779_tuple, 271
rpki::resource_set::resource_set_ip, 274
 inherit, 276
 parse_rfc3779_tuple, 275
 parse_str, 275
 to_rfc3779_tuple, 275
rpki::resource_set::resource_set_ipv4,
 277
 afi, 278
 range_type, 278
rpki::resource_set::resource_set_ipv6,
 279
 afi, 280
 range_type, 280
rpki::resource_set::roa_prefix, 281
 __cmp__, 282
 __init__, 282
 __str__, 282
 address, 283
 max, 282
 max_prefixlen, 283
 min, 282
 prefixlen, 283
 to_resource_range, 282
 to_roa_tuple, 283
rpki::resource_set::roa_prefix_ipv4, 284
 range_type, 284
rpki::resource_set::roa_prefix_ipv6, 285
 range_type, 286
rpki::resource_set::roa_prefix_set, 286
 __init__, 287
 __str__, 287
 from_sql, 287
 parse_str, 287
 to_resource_set, 288
 to_roa_tuple, 288
rpki::resource_set::roa_prefix_set_ipv4,
 288
 prefix_type, 289
 resource_set_type, 289
rpki::resource_set::roa_prefix_set_ipv6,
 290
 prefix_type, 290
 resource_set_type, 290
rpki::roa::ROAIPAddress, 291
 __init__, 291
 address, 292
 maxLength, 292
rpki::roa::ROAIPAddresses, 292
 __init__, 292
rpki::roa::ROAIPAddressFamilies, 293
 __init__, 293
rpki::roa::ROAIPAddressFamily, 294
 __init__, 294
 addresses, 294
 addressFamily, 294
rpki::roa::RouteOriginAttestation, 295
 __init__, 295
 asID, 296
 explicitVersion, 296
 ipAddrBlocks, 296
 version, 296

rpki::rpki_engine::ca_detail_obj, 297
 activate, 299
 ca, 299
 ca_cert_uri, 302
 ca_id, 302
 child_certs, 299
 create, 299
 crl_uri, 299
 crl_uri_tail, 299
 delete, 299
 gctx, 302
 generate_crl, 300
 generate_manifest, 300
 generate_manifest_cert, 300
 issue, 300
 issue_ee, 300
 latest_ca_cert, 302
 latest_crl, 302
 latest_manifest, 302
 latest_manifest_cert, 302
 manifest_private_key_id, 302
 manifest_public_key, 302
 manifest_uri, 300
 private_key_id, 303
 public_key, 303
 revoke, 301
 revoked_certs, 301
 route_origins, 301
 sql_decode, 301
 sql_template, 303
 state, 303
 update, 301
rpki::rpki_engine::ca_obj, 304
 ca_details, 305
 check_for_updates, 305
 construct_sia_uri, 306
 create, 306
 delete, 306
 fetch_active, 306
 fetch_DEPRECATED, 306
 fetch_pending, 307
 fetch_revoked, 307
 gctx, 308
 last_crl_sn, 308
 last_issued_sn, 308
 last_manifest_sn, 308
 next_crl_number, 307
 next_manifest_number, 307
 next_serial_number, 307
 parent, 307
 parent_id, 308
 parent_resource_class, 308
 rekey, 307
 revoke, 308
 sia_uri, 308
 sql_template, 308
rpki::rpki_engine::child_cert_obj, 310
 __init__, 311
 ca_detail, 311
 ca_detail_id, 312
 cert, 312
 child, 311
 child_id, 313
 fetch, 311
 gctx, 313
 reissue, 312
 revoke, 312
 sql_template, 313
 uri, 312
 uri_tail, 312
rpki::rpki_engine::revoked_cert_obj, 314
 __init__, 315
 ca_detail, 315
 ca_detail_id, 316
 expires, 316
 gctx, 316
 revoke, 315
 revoked, 316
 serial, 316
 sql_template, 316
rpki::rpki_engine::rpkid_context, 317
 __init__, 318
 bpki_ta, 319
 build_https_ta_cache, 318
 clear_https_ta_cache, 318
 cronjob_handler, 318
 https_server_host, 319
 https_server_port, 319
 https_ta_cache, 319
 irbe_cert, 320
 irdb_cert, 320
 irdb_query, 318

irdb_url, 320
left_right_handler, 319
publication_kludge_base, 320
rpkid_cert, 320
rpkid_key, 320
sql, 320
up_down_handler, 319
rpki::sql::session, 321
 __init__, 322
 _exceptions_enabled, 324
 _wrap_execute, 322
 assert_pristine, 322
cache, 324
cache_clear, 323
close, 323
connect, 323
cur, 324
database, 324
db, 324
dirty, 324
execute, 323
executemany, 323
fetchall, 323
lastrowid, 323
password, 324
ping, 323
sweep, 323
username, 324
rpki::sql::sql_persistent, 325
 gctx, 329
 sql_debug, 329
 sql_decode, 326
 sql_delete, 326
 sql_delete_hook, 327
 sql_deleted, 329
 sql_encode, 327
 sql_fetch, 327
 sql_fetch_all, 327
 sql_fetch_hook, 327
 sql_fetch_where, 328
 sql_fetch_where1, 328
 sql_in_db, 330
 sql_init, 328
 sql_insert_hook, 328
 sql_is_dirty, 328
 sql_mark_clean, 328
 sql_mark_deleted, 329
 sql_mark_dirty, 329
 sql_store, 329
 sql_update_hook, 329
rpki::sql::template, 330
 __init__, 331
 columns, 331
 delete, 331
 index, 331
 insert, 331
 map, 331
 select, 331
 table, 332
 update, 332
rpki::sundial
 now, 34
 test, 34
rpki::sundial::datetime, 332
 __add__, 333
 __str__, 333
 __sub__, 333
 earlier, 334
 from_sql, 334
 fromASN1tuple, 334
 fromdatetime, 334
 fromGeneralizedTime, 334
 fromUTCTime, 334
 fromXMLtime, 334
 later, 335
 PKIX_threshold, 336
 to_sql, 335
 toASN1tuple, 335
 toGeneralizedTime, 335
 totimestamp, 335
 toUTCTime, 335
 toXMLtime, 336
rpki::sundial::timedelta, 336
 convert_to_seconds, 337
 parse, 337
 regexp, 337
rpki::up_down
 nsmap, 35
 xmlns, 35
rpki::up_down::base_elt, 338
 check_response, 339
 endElement, 339

make_b64elt, 339
make_elt, 339
serve_pdu, 339
startElement, 340
rpki::up_down::certificate_elt, 341
cert, 342
cert_url, 342
endElement, 342
req_resource_set_as, 343
req_resource_set_ipv4, 343
req_resource_set_ipv6, 343
startElement, 342
toXML, 342
rpki::up_down::class_elt, 344
__init__, 345
cert_url, 346
certs, 346
class_name, 346
endElement, 345
from_resource_bag, 345
issuer, 346
resource_set_as, 346
resource_set_ipv4, 347
resource_set_ipv6, 347
resource_set_notafter, 347
startElement, 346
suggested_sia_head, 347
to_resource_bag, 346
toXML, 346
rpki::up_down::class_response_syntax,
 348
 __init__, 349
 classes, 349
 startElement, 349
 toXML, 349
rpki::up_down::cms_msg, 350
 encoding, 351
 saxify, 351
 schema, 351
rpki::up_down::error_response_pdu, 352
 __init__, 353
 check_response, 353
 codes, 354
 description, 354
 endElement, 353
 exceptions, 354
 status, 354
 toXML, 353
rpki::up_down::issue_pdu, 355
 class_name, 357
 endElement, 356
 pkcs10, 357
 query, 356
 req_resource_set_as, 357
 req_resource_set_ipv4, 357
 req_resource_set_ipv6, 357
 serve_pdu, 356
 startElement, 356
 toXML, 357
rpki::up_down::issue_response_pdu, 358
 check_response, 359
rpki::up_down::list_pdu, 360
 query, 361
 serve_pdu, 361
 toXML, 361
rpki::up_down::list_response_pdu, 362
rpki::up_down::message_pdu, 363
 __str__, 364
 make_query, 364
 name2type, 365
 payload, 365
 recipient, 366
 sender, 366
 serve_error, 364
 serve_top_level, 365
 startElement, 365
 toXML, 365
 type, 366
 type2name, 366
 version, 366
rpki::up_down::multi_uri, 367
 __init__, 367
 __str__, 367
 rsync, 367
rpki::up_down::revoke_pdu, 369
 class_name, 370
 get_SKI, 370
 query, 370
 serve_pdu, 370
 ski, 370
rpki::up_down::revoke_response_pdu,
 372

rpki::up_down::revoke_syntax, 373
 class_name, 374
 ski, 374
 startElement, 374
 toXML, 374
rpki::up_down::sax_handler, 376
 name, 377
 pdu, 377
 version, 377
rpki::x509
 calculate_SKI, 36
 POWify_OID, 37
rpki::x509::CMS_object, 379
 content, 382
 debug_cms_certs, 382
 DER, 382
 dump_on_verify_failure, 382
 econtent_oid, 382
 formats, 383
 get_content, 381
 get_DER, 381
 get_POW, 381
 other_clear, 383
 pem_converter, 383
 POW, 383
 print_on_der_error, 383
 require_crls, 383
 set_content, 381
 sign, 381
 verify, 382
rpki::x509::CRL, 384
 DER, 387
 formats, 387
 generate, 385
 get_DER, 385
 get_POW, 386
 get_POWpkix, 386
 getIssuer, 386
 getNextUpdate, 386
 getThisUpdate, 386
 pem_converter, 387
 POW, 387
 POWpkix, 387
rpki::x509::DER_CMS_object, 388
 content, 389
 decode, 389
 encode, 389
rpki::x509::DER_object, 391
 __cmp__, 393
 __init__, 393
 clear, 393
 DER, 396
 dumpasn1, 393
 empty, 393
 formats, 396
 from_sql, 393
 gAKI, 394
 get_3779resources, 394
 get_AIA, 394
 get_AKI, 394
 get_Base64, 394
 get_basicConstraints, 394
 get_DER, 394
 get_PEM, 395
 get_SIA, 395
 get_SKI, 395
 gSKI, 395
 hAKI, 395
 hSKI, 395
 is_CA, 396
 other_clear, 397
 pem_converter, 397
 set, 396
 to_sql, 396
rpki::x509::PEM_converter, 397
 __init__, 398
 b, 399
 e, 399
 looks_like_PEM, 398
 to_DER, 398
 to_PEM, 398
rpki::x509::PKCS10, 400
 check_valid_rpki, 401
 create, 401
 create_ca, 401
 DER, 402
 formats, 402
 get_DER, 402
 get_POWpkix, 402
 getPublicKey, 402
 pem_converter, 402
 POWpkix, 403

rpk::x509::ROA, 404
 build, 405
 content_class, 405
 econtent_oid, 405
 pem_converter, 405
rpk::x509::RSA, 406
 DER, 409
 formats, 409
 generate, 407
 get_DER, 407
 get_POW, 408
 get_public_DER, 408
 get_RSApublic, 408
 get_SKI, 408
 get_tslite, 408
 pem_converter, 409
 POW, 409
 tslite, 409
rpk::x509::RSAPublic, 410
 DER, 412
 formats, 412
 get_DER, 411
 get_POW, 411
 get_SKI, 411
 pem_converter, 412
 POW, 412
rpk::x509::SignedManifest, 413
 build, 414
 content_class, 414
 econtent_oid, 414
 getNextUpdate, 414
 getThisUpdate, 414
 pem_converter, 415
rpk::x509::X509, 416
 DER, 419
 formats, 419
 get_DER, 417
 get_POW, 418
 get_POWpkix, 418
 get_tslite, 418
 getIssuer, 418
 getNotAfter, 418
 getNotBefore, 418
 getPublicKey, 418
 getSerial, 419
 getSubject, 419
 issue, 419
 normalize_chain, 419
 pem_converter, 420
 POW, 420
 POWpkix, 420
 tslite, 420
rpk::x509::XML_CMS_object, 422
 content, 424
 decode, 423
 dump_inbound_cms, 424
 dump_outbound_cms, 425
 dump_to_disk, 423
 econtent_oid, 425
 encode, 423
 pretty_print_content, 424
 schema_check, 424
 unwrap, 424
 wrap, 424
rpki::xml_utils::base_elt, 426
 __str__, 427
 attributes, 428
 booleans, 428
 elements, 429
 endElement, 427
 make_b64elt, 427
 make_elt, 427
 make_pdu, 427
 readAttrs, 428
 startElement, 428
 toXML, 428
rpki::xml_utils::data_elt, 430
 endElement, 431
 make_reply, 431
 make_reply_clone_hook, 431
 serve_create, 431
 serve_destroy, 432
 serve_dispatch, 432
 serve_get, 432
 serve_list, 432
 serve_post_save_hook, 432
 serve_pre_save_hook, 432
 serve_set, 433
 toXML, 433
 unimplemented_control, 433
rpki::xml_utils::msg, 434
 __str__, 435

endElement, 435
startElement, 435
toXML, 435
type, 435
version, 435
rpki::xml_utils::sax_handler, 437
 __init__, 438
 characters, 438
 create_top_level, 438
 endElement, 439
 endElementNS, 439
 result, 440
 saxify, 439
 stack, 440
 startElement, 439
 startElementNS, 439
 text, 440
rpki_base_uri
 rootd, 15
rpki_checker
 rpki::https::httpsServer, 154
rpki_class_name
 rootd, 15
rpki_content_type
 rpki::https, 21
rpki_engine.py(1932), 456
rpki_find_handler
 rpki::https::requestHandler, 155
rpki_handlers
 rpki::https::requestHandler, 155
rpki_root_cert
 rootd, 15
rpki_root_cert_uri
 rootd, 15
rpki_root_crl
 rootd, 15
rpki_root_dir
 rootd, 15
rpki_root_key
 rootd, 16
rpki_root_manifest
 rootd, 16
rpki_server_cert
 rpki::https::httpsServer, 154
rpki_server_key
 rpki::https::httpsServer, 154
rpki_sessionCache
 rpki::https::httpsServer, 154
rpki_subject_cert
 rootd, 16
rpki_subject_lifetime
 rootd, 16
rpki_subject_pkcs10
 rootd, 16
rpkid, 37
 cfg_file, 38
 main, 38
 profile, 38
rpkid.py(1880), 456
rpkid_cert
 irdbd, 10
 rpki::rpki_engine::rpkid_context,
 320
rpkid_key
 rpki::rpki_engine::rpkid_context,
 320
rsync
 rpki::up_down::multi_uri, 367
saxify
 irbe_cli::left_right_cms_msg, 65
 irbe_cli::publication_cms_msg, 77
 rootd::cms_msg, 102
 rpki::left_right::cms_msg, 170
 rpki::publication::cms_msg, 227
 rpki::up_down::cms_msg, 351
 rpki::xml_utils::sax_handler, 439
schema
 rpki::left_right::cms_msg, 170
 rpki::publication::cms_msg, 227
 rpki::up_down::cms_msg, 351
schema_check
 rpki::x509::XML_CMS_object, 424
select
 rpki::sql::template, 331
self
 rpki::left_right::data_elt, 173
self_id
 rpki::left_right::report_error_elt, 191
 rpki::left_right::self_elt, 213
sender
 rpki::up_down::message_pdu, 366

Sequence, 440
SequenceOf, 441
serial
 cross_certify, 3
 rpki::rpk_engine::revoked_cert_obj,
 316
serial_file
 cross_certify, 4
serve_create
 rpki::xml_utils::data_elt, 431
serve_destroy
 rpki::xml_utils::data_elt, 432
serve_dispatch
 rpki::publication::control_elt, 235
 rpki::publication::publication_-
 object_elt, 245
 rpki::xml_utils::data_elt, 432
serve_error
 rpki::up_down::message_pdu, 364
serve_fetch_all
 rpki::left_right::data_elt, 173
 rpki::left_right::self_elt, 211
 rpki::publication::client_elt, 223
serve_fetch_one
 rpki::left_right::data_elt, 173
 rpki::left_right::self_elt, 211
 rpki::publication::client_elt, 224
 rpki::publication::config_elt, 230
serve_get
 rpki::xml_utils::data_elt, 432
serve_list
 rpki::xml_utils::data_elt, 432
serve_pdu
 rootd::issue_pdu, 104
 rootd::list_pdu, 106
 rootd::revoke_pdu, 110
 rpki::up_down::base_elt, 339
 rpki::up_down::issue_pdu, 356
 rpki::up_down::list_pdu, 361
 rpki::up_down::revoke_pdu, 370
serve_post_save_hook
 rpki::left_right::child_elt, 167
 rpki::left_right::parent_elt, 186
 rpki::left_right::route_origin_elt,
 201
 rpki::left_right::self_elt, 211
rpki::publication::client_elt, 224
rpki::xml_utils::data_elt, 432
serve_pre_save_hook
 rpki::left_right::bsc_elt, 162
 rpki::xml_utils::data_elt, 432
serve_publish
 rpki::publication::publication_-
 object_elt, 245
serve_rekey
 rpki::left_right::parent_elt, 186
 rpki::left_right::self_elt, 211
serve_revoke
 rpki::left_right::parent_elt, 186
 rpki::left_right::self_elt, 211
serve_set
 rpki::publication::config_elt, 231
 rpki::xml_utils::data_elt, 433
serve_top_level
 rpki::left_right::msg, 181
 rpki::publication::msg, 241
 rpki::up_down::message_pdu, 365
serve_up_down
 rpki::left_right::child_elt, 167
serve_withdraw
 rpki::publication::publication_-
 object_elt, 246
server
 rpki::https, 20
server_cert
 irdbd, 10
 rootd, 16
server_ta
 irbe_cli, 7
set
 rpki::x509::DER_object, 396
set_content
 rpki::x509::CMS_object, 381
set_subject_cert
 rootd, 13
set_trace
 rpki::log, 24
sia_uri
 rpki::rpk_engine::ca_obj, 308
sign
 rpki::x509::CMS_object, 381
signing_cert

irbe_cli::bsc_elt, 44
rpki::left_right::bsc_elt, 163

signing_cert_crl
 irbe_cli::bsc_elt, 44
 rpki::left_right::bsc_elt, 163

ski
 rpki::up_down::revoke_pdu, 370
 rpki::up_down::revoke_syntax, 374

sql
 pubdb::pubdb_context, 99
 rpki::rpki_engine::rpkid_context,
 320

sql.py(1979), 456

sql_debug
 rpki::sql::sql_persistent, 329

sql_decode
 rpki::rpki_engine::ca_detail_obj,
 301
 rpki::sql::sql_persistent, 326

sql_delete
 rpki::sql::sql_persistent, 326

sql_delete_hook
 rpki::left_right::route_origin_elt,
 201
 rpki::sql::sql_persistent, 327

sql_deleted
 rpki::sql::sql_persistent, 329

sql_encode
 rpki::sql::sql_persistent, 327

sql_fetch
 rpki::sql::sql_persistent, 327

sql_fetch_all
 rpki::sql::sql_persistent, 327

sql_fetch_hook
 rpki::left_right::route_origin_elt,
 201
 rpki::sql::sql_persistent, 327

sql_fetch_where
 rpki::sql::sql_persistent, 328

sql_fetch_where1
 rpki::sql::sql_persistent, 328

sql_in_db
 rpki::sql::sql_persistent, 330

sql_init
 rpki::sql::sql_persistent, 328

sql_insert_hook

rpki::left_right::route_origin_elt,
 201
rpki::sql::sql_persistent, 328

sql_is_dirty
 rpki::sql::sql_persistent, 328

sql_mark_clean
 rpki::sql::sql_persistent, 328

sql_mark_deleted
 rpki::sql::sql_persistent, 329

sql_mark_dirty
 rpki::sql::sql_persistent, 329

sql_store
 rpki::sql::sql_persistent, 329

sql_template
 rpki::left_right::bsc_elt, 163
 rpki::left_right::child_elt, 168
 rpki::left_right::parent_elt, 188
 rpki::left_right::repository_elt, 196
 rpki::left_right::route_origin_elt,
 204
 rpki::left_right::self_elt, 213
 rpki::publication::client_elt, 225
 rpki::publication::config_elt, 232
 rpki::rpki_engine::ca_detail_obj,
 303
 rpki::rpki_engine::ca_obj, 308
 rpki::rpki_engine::child_cert_obj,
 313
 rpki::rpki_engine::revoked_cert_obj,
 316

sql_update_hook
 rpki::sql::sql_persistent, 329

stack
 rpki::xml_utils::sax_handler, 440

startElement
 rpki::left_right::list_resources_elt,
 178

rpki::left_right::route_origin_elt,
 202

rpki::publication::config_elt, 231

rpki::up_down::base_elt, 340

rpki::up_down::certificate_elt, 342

rpki::up_down::class_elt, 346

rpki::up_down::class_response_
 syntax, 349

rpki::up_down::issue_pdu, 356

rpki::up_down::message_pdu, 365
rpki::up_down::revoke_syntax, 374
rpki::xml_utils::base_elt, 428
rpki::xml_utils::msg, 435
rpki::xml_utils::sax_handler, 439
startElementNS
 rpki::xml_utils::sax_handler, 439
startup_msg
 irdbd, 10
stash_subject_pkcs10
 rootd, 13
state
 rpki::rpk_engine::ca_detail_obj, 303
status
 rpki::up_down::error_response_pdu, 354
suggested_sia_head
 rpki::up_down::class_elt, 347
sundial.py(1915), 457
sweep
 rpki::sql::session, 323
symmetric_difference
 rpki::resource_set::resource_set, 269
table
 rpki::sql::template, 332
test
 rpki::sundial, 34
test1
 rpki::resource_set, 30
test2
 rpki::resource_set, 31
text
 rpki::xml_utils::sax_handler, 440
textwrap::TextWrapper, 441
thisUpdate
 rpki::manifest::Manifest, 218
tlslite
 rpki::x509::RSA, 409
 rpki::x509::X509, 420
tlslite::api::Checker, 442
tlslite::api::HTTPTLSConnection, 442
tlslite::api::TLSSocketServerMixIn, 443
tlslite_certChain
 rpki::https, 20
to_DER
 rpki::x509::PEM_converter, 398
to_PEM
 rpki::x509::PEM_converter, 398
to_resource_bag
 rpki::up_down::class_elt, 346
to_resource_range
 rpki::resource_set::roa_prefix, 282
to_resource_set
 rpki::resource_set::roa_prefix_set, 288
to_rfc3779_tuple
 rpki::resource_set::resource_range_as, 259
 rpki::resource_set::resource_range_ip, 261
 rpki::resource_set::resource_set_as, 271
 rpki::resource_set::resource_set_ip, 275
to_roa_tuple
 rpki::resource_set::roa_prefix, 283
 rpki::resource_set::roa_prefix_set, 288
to_sql
 rpki::sundial::datetime, 335
 rpki::x509::DER_object, 396
toASN1tuple
 rpki::sundial::datetime, 335
toGeneralizedTime
 rpki::sundial::datetime, 335
top_opts
 irbe_cli, 7
totimestamp
 rpki::sundial::datetime, 335
toUTCTime
 rpki::sundial::datetime, 335
toXML
 rpki::left_right::list_resources_elt, 178
 rpki::publication::publication_object_elt, 246
 rpki::up_down::certificate_elt, 342
 rpki::up_down::class_elt, 346
 rpki::up_down::class_response_syntax, 349

rpki::up_down::error_response_pdu,
 353
rpki::up_down::issue_pdu, 357
rpki::up_down::list_pdu, 361
rpki::up_down::message_pdu, 365
rpki::up_down::revoke_syntax, 374
rpki::xml_utils::base_elt, 428
rpki::xml_utils::data_elt, 433
rpki::xml_utils::msg, 435
toXMLtime
 rpki::sundial::datetime, 336
trace
 rpki::log, 24
type
 rpki::up_down::message_pdu, 366
 rpki::xml_utils::msg, 435
type2name
 rootd::message_pdu, 108
 rpki::up_down::message_pdu, 366

u
 irdbd, 10
undersized
 rpki::resource_set::resource_bag,
 255
unimplemented_control
 rpki::left_right::data_elt, 174
 rpki::xml_utils::data_elt, 433
union
 rpki::resource_set::resource_bag,
 255
 rpki::resource_set::resource_set, 269
unwrap
 rpki::x509::XML_CMS_object, 424
up_down
 rpki::relaxng, 28
up_down.py(1873), 457
up_down_handler
 rootd, 13
 rpki::rpki_engine::rpkid_context,
 319
update
 rpki::rpki_engine::ca_detail_obj,
 301
 rpki::sql::template, 332
update_children
 rpki::left_right::self_elt, 211
update_roa
 rpki::left_right::route_origin_elt,
 202
update_roas
 rpki::left_right::self_elt, 212
uri
 rpki::rpki_engine::child_cert_obj,
 312
uri_tail
 rpki::rpki_engine::child_cert_obj,
 312
uri_to_filename
 rpki::left_right::repository_elt, 195
 rpki::publication::publication_-
 object_elt, 246
url
 irbe_cli, 7
usage
 cross_certify, 3
 irbe_cli, 5
 irbe_cli::cmd_elt_mixin, 55
 irbe_cli::cmd_msg_mixin, 57
usage_fill
 irbe_cli, 7
use_hsm
 rpki::left_right::self_elt, 213
use_pubd
 rpki::left_right::repository_elt, 196
username
 rpki::sql::session, 324
v4
 rpki::resource_set::resource_bag,
 255
v6
 rpki::resource_set::resource_bag,
 255
valid_until
 rpki::left_right::list_resources_elt,
 179
 rpki::resource_set::resource_bag,
 255
verbose
 irbe_cli, 7
verify

rpkii::x509::CMS_object, 382
version
 rpkii::left_right::msg, 181
 rpkii::left_right::sax_handler, 206
 rpkii::manifest::Manifest, 218
 rpkii::publication::msg, 241
 rpkii::publication::sax_handler, 252
 rpkii::roa::RouteOriginAttestation,
 296
 rpkii::up_down::message_pdu, 366
 rpkii::up_down::sax_handler, 377
 rpkii::xml_utils::msg, 435

warn
 rpkii::log, 24

wired_in_config_id
 rpkii::publication::config_elt, 232

withdraw
 rpkii::left_right::repository_elt, 195

withdraw_roa
 rpkii::left_right::route_origin_elt,
 202

wrap
 rpkii::x509::XML_CMS_object, 424

x
 cross_certify, 4

x509.py(1916), 458

x509store
 rpkii::https::Checker, 151

x509store_thunk
 rpkii::https::Checker, 150

xml::sax::handler::ContentHandler, 444

xml_utils.py(1873), 458

xmlns
 rpkii::left_right::left_right_-
 namespace, 176
 rpkii::publication::publication_-
 namespace, 243
 rpkii::up_down, 35