

# IPv6 Knowledge Base

## IPv6 Application Conversion Tools

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**Disclaimer: The presence of information in this list does not constitute an endorsement of that information or the developer of that information**

**This IPv6 application conversion information is divided into the following categories:**

**1 Information about IPv6 conversion tools and utility Software**

**2 Information about IPv6 conversion guidelines**

**3 Archival information (published or presented in 2007 and earlier)**

**General Information about IPv6 conversion tools, utility Software, and guidelines for converting applications:**  
This listing mentions several sources of available products. It does not attempt nor promise to be comprehensive.

**NOTE:** Terminology for IPv6 addresses has changed over time. Three changes of note in the terminology are:  
(1) RIR policy for default prefix allocations changed from /35 to /32 in March 2002,  
(2) site-local addresses were deprecated in September 2004 by RFC 3789, and  
(3) unique local addresses were adopted in October 2005 by RFC 4193.

### 1 Information about IPv6 conversion tools and utility Software

Manufacturer, Vendor or Developer	Make, Model, or Series	Version with IPv6	Date of Support	Comments or Additional Information	Related Website
Antonios Gouglidis	PortToIPv6 Framework	initial release		framework is to amplify and accelerate the application-porting process during the transition period from IPv4 to IPv6	<a href="https://sourceforge.net/projects/porttoipv6/">(https://sourceforge.net/projects/porttoipv6/)</a>
Brian Phaley	IPv6finder	0.3	May-08	C source code examiner	<a href="https://sourceforge.net/projects/ipv6finder/">(https://sourceforge.net/projects/ipv6finder/)</a>
Broadcom Inc. (Formerly Computer Associates, Inc.) <a href="https://www.broadcom.com/products/mainframe/product-portfolio/plex">https://www.broadcom.com/products/mainframe/product-portfolio/plex</a>	CA Plex	r6.1	Dec-08	Architected rapid application development environment for Microsoft .NET Framework, J2EE and IBM iWeb with IPv6 support	
Hewlett Packard Development Company <a href="https://www.hp.com">https://www.hp.com</a>	ipv6sniff		Dec-00	Utility program. Runs on HP-UX and Tru64 only. Source code for porting to other operating systems available.	<a href="http://nixdoc.net/manuals/tru64/man8/ipv6sniff.8.html">http://nixdoc.net/manuals/tru64/man8/ipv6sniff.8.html</a> (Archival copy of code and documentation available from IPv6 Knowledge Base administrator. Please contact ipv6-team [at] dren.mil.)
Intermapper <a href="http://web.archive.org/web/20160715020442/https://bitbucket.org/intermapper/ipv6-validator">http://web.archive.org/web/20160715020442/https://bitbucket.org/intermapper/ipv6-validator</a>	IPv6 Test & Address Validation		Jan-15	source code for the tool available in RegEx, Perl, Ruby, and Java	<a href="https://community.helpsystems.com/forums/intermapper/miscellaneous-topics/5acc4fcf-fa83-e511-80cf-0050568460e4">https://community.helpsystems.com/forums/intermapper/miscellaneous-topics/5acc4fcf-fa83-e511-80cf-0050568460e4</a> )

21	IPv6 Compliant Automatic Runtime Environment (CARE)	IPv6 CARE	1.1	Dec-08	open source software tool for porting IPv4 code to IPv6. While an application is running CARE will log all non-IPv6 compliant system calls for analysis	( <a href="https://sourceforge.net/projects/ipv6-care/">https://sourceforge.net/projects/ipv6-care/</a> )
22	Jake	Short IPv6 Validation in RegEx		Feb-12	short IPv6 RegEx in PHP, with link to several other languages	( <a href="https://mebsd.com/coding-snippets/php-regex-ipv6-with-preg_match-revisited.html">https://mebsd.com/coding-snippets/php-regex-ipv6-with-preg_match-revisited.html</a> )
23	Microsoft Corporation <a href="https://www.microsoft.com">https://www.microsoft.com</a>	checkv4.exe	Initial release 1-Dec-00		Utility program. Runs on Windows only. Its use is described at ( <a href="https://docs.microsoft.com/en-us/windows/desktop/WinSock/using-the-checkv4-exe-utility-2">https://docs.microsoft.com/en-us/windows/desktop/WinSock/using-the-checkv4-exe-utility-2</a> )	The Checkv4.exe utility is part of the Microsoft Kinect for Windows Software Development Kit (SDK). The Kinect for Windows SDK is available through an MSDN subscription and can also be directly downloaded from the Microsoft web site.
24		IPv6 Test Plan for Office 365	1-Mar-13		IPv6 Test Plan for Office 365 Component Functionality	( <a href="https://www.hpc.mil/images/hpcdocs/ipv6/office365_ipv6testplan.pdf">https://www.hpc.mil/images/hpcdocs/ipv6/office365_ipv6testplan.pdf</a> )
	Monforte Salvatore, EUChinaGrid	IPV6_Code_Checker	V1.0	Sep-06	a BASH script.	( <a href="http://web.archive.org/web/20140707093644/http://www.euchinagrid.org/IPv6/cod_checker.html">http://web.archive.org/web/20140707093644/http://www.euchinagrid.org/IPv6/cod_checker.html</a> )
25	Python Software Foundation	ipaddress	V3.3	Sep-12	IPv4/IPv6 manipulation library	( <a href="https://docs.python.org/3/library/ipaddress.html">https://docs.python.org/3/library/ipaddress.html</a> )
26	Sun Microsystems <a href="https://www.oracle.com/sun">https://www.oracle.com/sun</a> (an Oracle Corporation company)	Solaris IPv6 Socket Scrubber for C/C++	Dec-99		Utility program to analyze source code. Runs on Solaris\SPARC and Solaris\i386 only. Source code for porting to other operating systems available.	(Archival copy available from IPv6 Knowledge Base administrator. Please contact ipv6-team [at] dren.mil.)
27	<b>2 Information about IPv6 conversion guidelines</b>					
28	<b>Manufacturer, Vendor or Developer</b>	<b>Make, Model, or Series</b>	<b>Version with IPv6</b>	<b>Date of Support</b>	<b>Comments or Additional Information</b>	<b>Related Website</b>
29	6 Deploy	Implementing IPv6 Applications		Jun-10	document. A comprehensive overview of application programming in C, Perl, Java, and PHP	( <a href="http://www.6deploy.eu/workshops/20100621_athens/5%20IPv6%20Software%20Development.pdf">http://www.6deploy.eu/workshops/20100621_athens/5%20IPv6%20Software%20Development.pdf</a> )
30	Ahmed Abu-Abed	Software changes for Website and Application IPv6 Readiness		Apr-10	as per Title	( <a href="https://www.menog.org/presentations/menog-6-7-8-9/Code%20IPv6%20Migration%20MENO%206.pdf">https://www.menog.org/presentations/menog-6-7-8-9/Code%20IPv6%20Migration%20MENO%206.pdf</a> )
31	American Registry for Internet Numbers (ARIN)	Preparing Applications for IPv6		Jul-15	document	( <a href="https://www.arin.net/resources/guide/ipv6/preparing_apps_for_v6.pdf">https://www.arin.net/resources/guide/ipv6/preparing_apps_for_v6.pdf</a> )
32	Arturo Servin	The importance of IPv6 Application Testing		Feb-13	document	( <a href="https://www.apricot.net/apricot2013/assets/ipv6apptesting_1361980313.pdf">https://www.apricot.net/apricot2013/assets/ipv6apptesting_1361980313.pdf</a> )
33	Beej	Beej's Guide to Network Programming		Jul-12		( <a href="https://beej.us/guide/bgnet/">https://beej.us/guide/bgnet/</a> ) website with downloadable PDF and errata, a printed version is available

		Using Internet Sockets				
34	Bert Hubbert PowerDNS	Making an Application Fully IPv6 Compliant		May-13	presentation with notes	( <a href="https://www.hpc.mil/images/hpcdocs/ipv6/RIPE66-134-Making%20an%20application%20fully%20IPv6%20compliant.pdf">https://www.hpc.mil/images/hpcdocs/ipv6/RIPE66-134-Making an application fully IPv6 compliant.pdf</a> )
35	Carl Williams RMv6TF Denver, CO	Application Development		Apr-09	document	( <a href="https://www.hpc.mil/images/hpcdocs/ipv6/Carl-Williams-RMv6TF-IPv6-Summit1.pdf">https://www.hpc.mil/images/hpcdocs/ipv6/Carl-Williams-RMv6TF-IPv6-Summit1.pdf</a> )
36	Dan York	Migrating Applications to IPv6		Jun-12	2nd version by O'Reilly Media, ISBN 1-44930-787-6	( <a href="http://migratingappstoipv6.com/">http://migratingappstoipv6.com/</a> ) website with errata, updates, interactive Q&A
37	Derek Moore PennState	IPv6 Programming		May-09	web page with programming guidelines for C/C++, RealBasic, Python, Perl, and Java	( <a href="https://wikispaces.psu.edu/display/ipv6/IPv6+programming">https://wikispaces.psu.edu/display/ipv6/IPv6+programming</a> )
38	Etienne Duble CNRS/UREC	IPv6 Compliance with C/C++, JAVA, PYTHON and PERL		Nov-08	document	( <a href="http://web.archive.org/web/20170621225026/https://edms.cern.ch/ui/file/971407/1/EGEE-III-SA2-TEC-971407-IPv6%20Compliance%20C%20Cpp%20Java%20Python%20Perl-v1.4.pdf">http://web.archive.org/web/20170621225026/https://edms.cern.ch/ui/file/971407/1/EGEE-III-SA2-TEC-971407-IPv6 Compliance C Cpp Java Python Perl-v1.4.pdf</a> )
39		How To Test a Socket Server IPv6 Compliance		Oct-08	document	( <a href="https://edms.cern.ch/file/930868/1/EGEE-III-SA2-TEC-930868-test%20server%20IPv6%20compliance-v1.2.doc">https://edms.cern.ch/file/930868/1/EGEE-III-SA2-TEC-930868-test server IPv6 compliance-v1.2.doc</a> )
40	NASA Glenn Research Center	Advanced IPv6 Socket Manipulation for Python		Sep-15	source code and documents	( <a href="https://github.com/nasa/ipv6_python">https://github.com/nasa/ipv6_python</a> )
41	Owen DeLong Hurricane Electric	Porting IPv4 Applications to IPv4/v6 dual stack		May-10	web site and documents for C, PERL, and PYTHON languages	( <a href="http://web.archive.org/web/20140610111452/http://meetings.apnic.net/data/assets/pdf_file/0011/18848/Porting-IPv4-Applications-to-Dual-Stack-Owen-Delong.pdf">http://web.archive.org/web/20140610111452/http://meetings.apnic.net/data/assets/pdf_file/0011/18848/Porting-IPv4-Applications-to-Dual-Stack-Owen-Delong.pdf</a> )
42	Qing Li, Jinmei Tatuya, and Keiichi Shima	IPv6 Socket API Extensions: Programmer's Guide		2009	Morgan Kaufmann Publishers ISBN 0-12375-076-8	
43	Steinar H. Gunderson, Google	IPv6 software porting		Jun-10	presentation at Google IPv6 Implementor's Conference	( <a href="https://sites.google.com/site/ipv6implementors/2010/agenda">https://sites.google.com/site/ipv6implementors/2010/agenda</a> )_The presentation and video may be found under the Friday 14:15 - 14:45 Application readiness session in the above agenda
44	Ulrich Drepper	Userlevel IPv6 Programming Introduction		Oct-08	document	( <a href="https://www.akkadia.org/drepper/us_erapi-ipv6.html">https://www.akkadia.org/drepper/us_erapi-ipv6.html</a> )

45	3 Archival information (published or presented in 2007 and earlier)					
46	Manufacturer, Vendor or Developer	Make, Model, or Series	Version with IPv6	Date of Support	Comments or Additional Information	Related Website
47	APT-NAv6 Center Joint Workshop on IPv6 (Hideaki and Sinniah)	1. IPv6 Standard Application Programming, and 2. IPv6 Programming on Microsoft Windows		Apr-06	zip file containing presentations, documents, and source code for basic and advanced socket API and Windows-based program development and debugging	( <a href="http://web.archive.org/web/20061103045124/http://www.nav6.usm.my:80/downloads/APT_NAv6%20Workshop2/Workshop%20on%20IPv6%20Programming.zip">http://web.archive.org/web/20061103045124/http://www.nav6.usm.my:80/downloads/APT_NAv6%20Workshop2/Workshop%20on%20IPv6%20Programming.zip</a> )
48	Eva M. Castro, Universidad Rey Juan Carlos	Porting applications to IPv6 HowTo		2003	document	( <a href="https://gsyc.urjc.es/~eva/IPv6-web/ipv6.html">https://gsyc.urjc.es/~eva/IPv6-web/ipv6.html</a> )
49	Eva M. Castro, US IPv6 Summit	IPv6 Porting Applications		2003	presentation	( <a href="http://web.archive.org/web/20040530200021/www.usipv6.com/2003arlington/presents/Eva_Castro.pdf">http://web.archive.org/web/20040530200021/www.usipv6.com/2003arlington/presents/Eva_Castro.pdf</a> )
50	Fulvio Riso	Writing IPv6 applications		Aug-03	presentation	( <a href="https://www.disi.unige.it/person/GianuzziV/MobComp/lucidi/Microsoft03.ppt">https://www.disi.unige.it/person/GianuzziV/MobComp/lucidi/Microsoft03.ppt</a> )
51	Hewlett Packard Development Company <a href="https://www.hp.com">https://www.hp.com</a>	HP-UX IPv6 Porting Guide		Sep-04		( <a href="http://web.archive.org/web/20190307230053/http://www.3kranger.com/HP3000/mpeix/en-hpux/5990-8371/5990-8371.pdf">http://web.archive.org/web/20190307230053/http://www.3kranger.com/HP3000/mpeix/en-hpux/5990-8371/5990-8371.pdf</a> )
52	IETF V6ops Working Group	Application Aspects of IPv6 Transition		Mar-05	IETF RFC 4038	( <a href="https://www.ietf.org/rfc/rfc4038.txt">https://www.ietf.org/rfc/rfc4038.txt</a> )
53	Jun-Ichiro Itojun Hagino	Address-family independent socket programming for IPv6		2004	presentation	( <a href="http://web.archive.org/web/20050509074857/www.ipv6.or.kr/summit2003/presentation/II-2.pdf">http://web.archive.org/web/20050509074857/www.ipv6.or.kr/summit2003/presentation/II-2.pdf</a> )
54		IPv6 Network Programming		2004	Butterworth-Heinemann ISBN 1-55558-318-0	
55	Jun-ichiro Itojun Itoh, KAME Project <a href="http://www.kame.net">www.kame.net</a>	Implementing Address Family (AF)-independent application		May-03	document	( <a href="http://www.kame.net/newsletter/19980604/">http://www.kame.net/newsletter/19980604/</a> )
56	Laboratories Over Next Generation Networks (LONG) <a href="http://long.ccaba.upc.es/">long.ccaba.upc.es/</a>	Key Issues in Porting Applications from IPv4 to IPv6		Jan-03	document	( <a href="http://web.archive.org/web/20030502005717/http://long.ccaba.upc.es/long/040Deliverables/LONG-D32A.pdf">http://web.archive.org/web/20030502005717/http://long.ccaba.upc.es/long/040Deliverables/LONG-D32A.pdf</a> )
57		Porting Applications to IPv6 HowTo by Eva M. Castro		Jan-03	document	( <a href="http://web.archive.org/web/20030702013912/http://long.ccaba.upc.es/long/045Guidelines/eva/ipv6.html">http://web.archive.org/web/20030702013912/http://long.ccaba.upc.es/long/045Guidelines/eva/ipv6.html</a> )

58		Programming Guidelines on Transition to IPv6		Jan-03	document	( <a href="http://web.archive.org/web/20040412215750/http://long.ccaba.upc.es/long/045Guidelines/LONG_Trans_app_IPv6.pdf">http://web.archive.org/web/20040412215750/http://long.ccaba.upc.es/long/045Guidelines/LONG_Trans_app_IPv6.pdf</a> )
59	Large Scale International IPv6 Pilot Network (6net) <a href="https://www.6net.org">https://www.6net.org</a>	Final report on applications development and evaluations		Jun-05	document (PDF)	( <a href="https://www.6net.org/publications/deliverables/D5.15.pdf">https://www.6net.org/publications/deliverables/D5.15.pdf</a> ) (The European 6NET project completed Jun 2005, followed by the 6DISS project which completed Sept 2007; followed by 6DEPLOY and 6DEPLOY-2 ( <a href="http://www.6deploy.eu">www.6deploy.eu</a> ) which completed Feb 2013. A more recent European IPv6 project was <a href="#">Governments Enabled with IPv6</a> (GEN6) which completed May 2015. Deliverables and Presentations under the Publications tab of the GEN6 website provide additional material. The current European IPv6 project is <a href="#">IPv6 Framework for European Governments.</a> )
60		IPv6-enabled Globus Toolkit		Jun-04		( <a href="https://www.6net.org/publications/deliverables/D5.12.pdf">https://www.6net.org/publications/deliverables/D5.12.pdf</a> )
61	Marc Blanchet, Andre Cormier, Florent Parent	Porting Applications to IPv6: simple and easy		May-00	document	( <a href="http://web.archive.org/web/20030409202312/http://www.viagenie.gc.ca/en/ipv6/presentations/IPv6%20porting%20appl_v1.pdf">http://web.archive.org/web/20030409202312/http://www.viagenie.gc.ca/en/ipv6/presentations/IPv6%20porting%20appl_v1.pdf</a> )
62	Marc Tortonesi Deep Space 6	Designing and Testing IPv6-enabled Networking Software		Mar-04	document	( <a href="https://www.deepspace6.net/docs/ipv6_app_design.html">https://www.deepspace6.net/docs/ipv6_app_design.html</a> )
63	Mark Meiss	Porting Applications to IPv6		Jun-04	presentation	( <a href="http://www.cu.ipv6tf.org/pdf/IPv6_Porting_Issues.pdf">http://www.cu.ipv6tf.org/pdf/IPv6_Porting_Issues.pdf</a> )
64	Microsoft Corporation <a href="https://www.microsoft.com">https://www.microsoft.com</a>	IPv6 Guide for Windows Sockets Applications		12/1/99 (revised May, 2018)	document	( <a href="https://docs.microsoft.com/en-us/windows/desktop/WinSock/ipv6-guide-for-windows-sockets-applications-2">https://docs.microsoft.com/en-us/windows/desktop/WinSock/ipv6-guide-for-windows-sockets-applications-2</a> )
65		IPv6 Transition Technologies		11/1/2002 (revised Feb, 2008)	web site and documents	( <a href="https://docs.microsoft.com/en-us/previous-versions//bb726951(v=technet.10)">https://docs.microsoft.com/en-us/previous-versions//bb726951(v=technet.10)</a> )
66	Rino Nuarda, EUChinaGrid	Introduction to IPv6 Programming		Jun-07	document. A comprehensive overview of application programming in C, Java, Perl, and PHP	( <a href="http://web.archive.org/web/20160327062830/https://twiki.cern.ch/twiki/pub/EGEE/IPv6FollowUp/Introduction">http://web.archive.org/web/20160327062830/https://twiki.cern.ch/twiki/pub/EGEE/IPv6FollowUp/Introduction</a>

					<a href="#">to IPv6 programming C Java PHP perl.pdf</a> )	
67	Specific Support Action in the 7th Framework Programme of the EU 6Deploy-2 project	Implementing IPv6 Applications		Jul-07	document. A comprehensive overview of application programming in C and Perl	<a href="http://www.6deploy.eu/tutorials/210-6deploy_devel_v0_4.pdf">http://www.6deploy.eu/tutorials/210-6deploy_devel_v0_4.pdf</a> )
68	Sukhdeep Singh Johar Novell, India	Porting IPv4 Applications to IPv6		Sep-02	document.	<a href="https://www.hpc.mil/images/hpcdocs/ipv6/porting_ipv4tov6_johar_2002.pdf">https://www.hpc.mil/images/hpcdocs/ipv6/porting_ipv4tov6_johar_2002.pdf</a> )
69	Sun Microsystems <a href="https://www.oracle.com/sun">https://www.oracle.com/sun</a> (an Oracle Corporation company)	IPv6 and the Future of the Internet: a Technical White Paper		Jun-99	document. No longer available on-line. See archive	<a href="http://web.archive.org/web/20100714015852/http://www.sun.com/software/whitepapers/wp-ipv6/ipv6wp.pdf">http://web.archive.org/web/20100714015852/http://www.sun.com/software/whitepapers/wp-ipv6/ipv6wp.pdf</a> )
70		Porting Networking Applications to the IPv6 APIs		Jun-99	document. No longer be available on-line. See archive	<a href="http://web.archive.org/web/20030410060635/http://www.sun.com/software/solaris/ipv6/porting_guide_ipv6.pdf">http://web.archive.org/web/20030410060635/http://www.sun.com/software/solaris/ipv6/porting_guide_ipv6.pdf</a> )
71	W. Richard Stevens	UNIX Network Programming, Second Edition		1998	3 volumes by Prentice Hall ISBN 0-13-490012-X, 0-13-081081-9, and TBD.	