



Latest Trends in Japanese Domain Names

2005 February version

日本語ドメイン名協会

(JDNA: Japanese Domain Names Association)

<http://日本語ドメイン名協会.jp/>

<http://www.jdna.jp/>

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First published 2004

Second edition 2005

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Published by Japanese Domain Name Association;
issued by Shigeki Goto; and edited by Yoshiro Yoneya

Printed in Japan



The Past and Future of Japanese Domain Names

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The history of the Internet reflects the history of commercialization, socialization, globalization and internationalization. As the technology evolved in the US, only English was considered necessary for the Internet and tools used on it in the early days. While the Internet was still hardly known in Japan, Japanese users struggled to write E-mail in broken English or used Roman characters because only the English alphabet could be used to write E-mail.

Now, many tools and protocols have been internationalized thanks to many efforts, and the environment has been created to allow people all over the world to use the Internet in their own language. Similarly, with regard to domain names, which are used as the addresses of Internet sites, the long deliberations of many engineers finally bore fruit in the form of the "Internationalized Domain Names (IDN)".

The Japanese Domain Names Association was established in July 2001 to spread this new technology, and has promoted awareness in Japan in line with internationalization, held lectures on Japanese domain names, and conducted technological verifications.

The JDNA also uses its knowledge and experience to contribute to standardization activities related to IDN in a variety of ways. Among these is "IDNConnect", an event held by JDNA in order to confirm the interconnectivity of IDN compatible applications and systems. This was an epoch-making event which confirmed that IDN would work in practice as a unified specification on the Internet.

Japanese domain names are now used by companies and so on, and are becoming an ever more familiar part of daily life. When attempting to popularize something new, it is necessary to spread the word at first, but once it passes a critical point, it spreads explosively. The Japanese Domain Names Association will continue with various activities in order to reach that point.

It is my fervent hope that this leaflet will help you to understand Japanese domain names.

November 2004

■ Outline of Japanese Domain Names

Japanese Domain Names are those in which Kanji (Han characters), Hiragana, Katakana can be used such as “日本語ドメイン名.JP” using Internationalized Domain Names(IDN) technology.

Examples of Japanese Domain Names

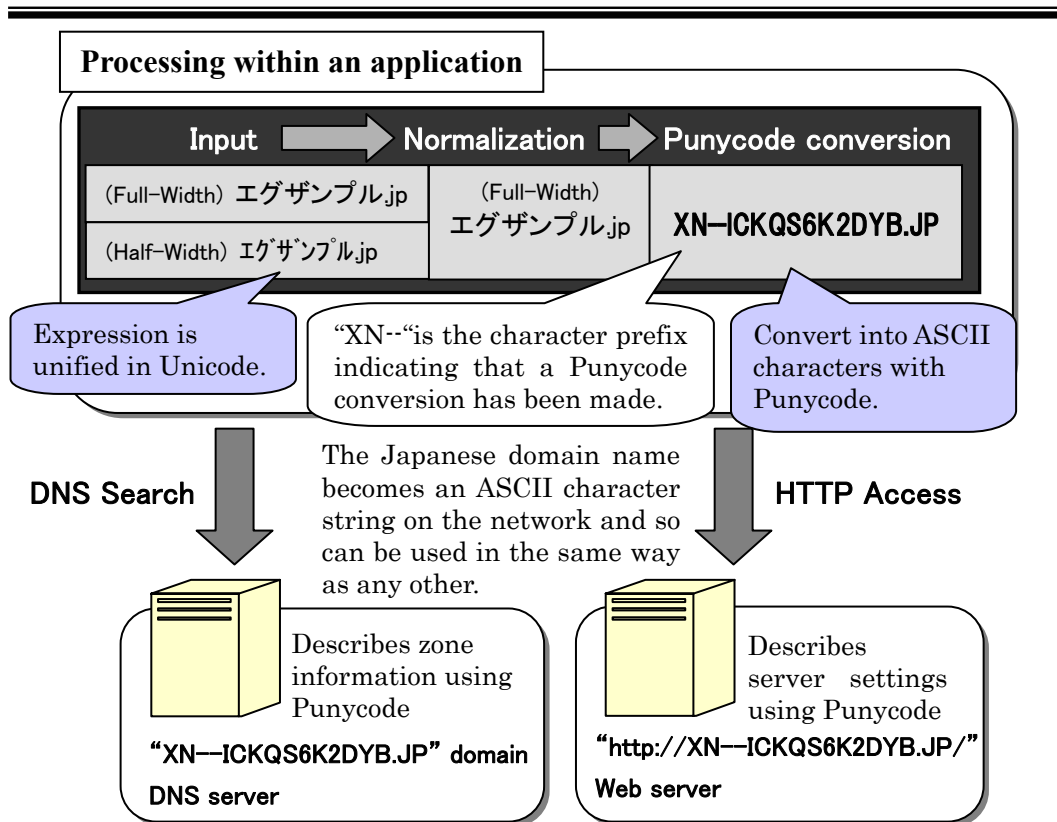
総務省.JP	大成建設.JP
生茶.JP	利右衛門.JP
後藤滋樹.JP	稲本潤一.JP

IDN is a technology that provides domain names that are easily understandable for Internet users in the non-English speaking world, and a system compatible with existing protocols is used to minimize any adverse influence on the Internet and prevent corruption of the present DNS structure. This technology enables Japanese Domain Names to be easily operated within the current system.

The concept, as shown in the figure, is that the internationalized domain name is converted to a domain name composed of alphanumeric characters following rules (Punycode) in the application on the user side and character strings composed only of 7-bit ASCII characters are used to communicate with name servers as before. Therefore, various settings can be made using domain names converted into Punycode on the DNS server or Web server.

For Technical details, refer to RFCs, etc. shown below.

- IDNA, which regulating protocol architecture of Internationalized Domain Names (RFC3490)
- NAMEPREP, which regulating normalization of Internationalized Domain Names (RFC3491)
- Punycode, which regulating the method of expressing Internationalized Domain Names on networks (RFC3492)



■ Usage environment of Japanese domain names

The application software must be compatible with IDN in order to use Japanese domain names. To achieve this, various efforts are being made; refer to "Handling of Japanese domain names by Web browsers" for the present status.

■ The global situation

The movement toward use of IDN is very strong at each TLD in the world. This has been particularly evident since the latter half of 2003, when it entered the business phase, and the number of countries using IDN such as South Korea, Taiwan, European countries and gTLDs is now increasing steadily. The time at which each TLD began registering IDN is described in "Appendix: History of Japanese domain names / Internationalized domain names".

■ Handling of Japanese domain names by Web browsers







It is possible to access a Japanese domain name website either using a web browser that is compatible with Japanese domain names or by installing supplementary software that adds this function to a web browser.

Our association is researching the environment for access to Japanese domain name websites with regard to Internet web browsers and the combination of a web browser and supplementary free software.

Accesses to Japanese domain name websites using combinations of browser and supplementary software shown on this page were all researched independently by our association, therefore please address all inquiries regarding this page to our association.

The following is an explanation of Japanese domain name compatible web browsers, supplementary software and the handling in environments other than on a PC.

■ Browser for PC (Windows, Mac, Linux)

Browser	Plug-in software
 Internet Explorer 5 or higher (Japanese version)	i-Nav ¹ JWord ²
 Netscape 7.1 (Japanese version) Netscape 7.2 (English version)	Not required
 Mozilla 1.7.5 (Japanese version/English version)	Not required
 Mozilla Firefox 1.0 (Japanese version/English version)	Not required
 Opera 7.54u2 (Japanese version/English version)	Not required
 Safari 1.2 (Japanese version)	Not required

¹ i-Nav is a product of VeriSign Inc.

² JWord is a product of Access Port Inc.



Internet Explorer 5 or higher (Japanese version)

Plug-in	Download	NAME PREP	Input		Inverse		Book mark	Hist
			U	L	U	L		
i-Nav	http://jprs.jp/i-Nav/	○	○	○	○	○	○	○
JWord	http://www.jword.jp/	○	○	○	○	×	△※	△※

※ Because saved URL is Punycode.



Netscape 7.1 (Japanese version), Netscape 7.2 (English version)

Netscape is compatible with IDN from version 7.1.

Version	NAME PREP	Input		Inverse		Book mark	Hist
		U	L	U	L		
7.1 (Japanese version)	△※	○	○	×	×	×	×
7.2 (English version)	○	○	○	×	×	○	○

※ Because Full-Width alphanumeric characters are not converted to ASCII characters.



Mozilla 1.7.5 (Japanese version/English version)

Mozilla is compatible with IDN from version 1.4.

Version	NAME PREP	Input		Inverse		Book mark	Hist
		U	L	U	L		
1.7.5 (Japanese/English)	○	○	○	×	×	○	○



Mozilla Firefox 1.0 (Japanese version/English version)

Mozilla Firefox is compatible with IDN from version 0.8.

Version	NAME PREP	Input		Inverse		Book mark	Hist
		U	L	U	L		
1.0 (Japanese/English)	○	○	○	×	×	○	○



Opera 7.54u2 (Japanese version/English version)

Opera is compatible with IDN from version 7.1.

Version	NAME PREP	Input		Inverse		Book mark	Hist
		U	L	U	L		
7.54u1 (Japanese/English)	△※	○	○	○	○	○	○

※ Because it is not compatible with conversion of Half-Width Katakana and Full-Width alphanumeric characters.



Safari 1.2 (Japanese version)

Safari is compatible with IDN from version 1.2.

Version	NAME PREP	Input		Inverse		Book mark	Hist
		U	L	U	L		
1.2 (Japanese version)	○	○	○	○	○	○	○

□ How to read the table (Explanatory note)

NAMEPREP
○: Compatible
×: Non-compatible
△: Partially compatible (degree of compatibility varies according to the browser)

Input
U ○: Compatible with input from URL (address) bar
L ○: Compatible with click on Link

Inverse (Inverse conversion)
U ○: Even when Punycode is input, it is converted into the Japanese domain name and displayed. ×: When Punycode is input, it is displayed as Punycode.
L ○: Even when a link is written in Punycode, the Japanese domain name is displayed in the status bar. ×: When a link is written in Punycode, it is displayed in the status bar as Punycode.

Bookmark
○: Bookmark is saved as Japanese domain name.
×: Saved bookmark is garbled or not accessible.

Hist (History)
○: History is saved in Japanese domain name.
×: Saved history is garbled or not accessible.

■ Non-PC environments

▼Cell phone

"au" cell phone unit "W21CA" (made by CASIO) provided by KDDI comes with the "Opera" browser compatible with Japanese domain names as a PC site viewer.

<http://www.casio.co.jp/k-tai/w21ca/>

▼Browsers for other equipment including cell phones, PDAs, etc.

The browser "NetFront" (made by ACCESS) used on many devices including cell phones, PDAs and household information appliances is compatible with Japanese domain names from version 3.3.

NetFront®

Jig browser (made by Jig.jp) provided as an application for cell phones is compatible with Japanese domain names.



<http://br.jig.jp/>

▼Japanese JP access site

Even if the browser used on a cell phone or PDA is not compatible with Japanese domain names, it is possible to access the site by accessing the Japanese JP access site "jajp.jp"³ first and then inputting the Japanese JP domain name there.



<http://jajp.jp/>

³ The Japanese JP access site is provided by Japan Registry Services Co., Ltd.

■ Appendix: History of Japanese/Internationalized domain names

	Major events, etc.	Remarks
1998	<i>Demands for domain names in the languages of Asian countries lead to the establishment of an organized investigation system.</i>	
	Jul	iDNS WG is established at APNG in INET98(Geneva)
1999	<i>Multilingual domain name business using UTF-5 and ZLD(Zero Level Domain) emerged in Asia.</i>	
	Feb	Dr. Tan Tinwee delivers a presentation on iDNS at JPNIC Associate professor at Singapore National University
	Mar	iDNS BoF is held at APRICOT99(Singapore)
	May	iDNS-TF is established in JPNIC Surveillance and Study
	Jun	iDNS BoF is held at INET99(San Jose)
	Sep	iDNS BoF is held at IWI99(Aizu, Japan) Waseda Univ. from Japan presents a research paper
	Nov	iDNS BoF is held at the 46 th IETF(Washington D.C.) Explanation of iDNS by JPNIC at APAN-JP debriefing session
	Dec	Explanation of iDNS by JPNIC at DOMAIN-TALK Meeting at Internet Week 99 (Yokohama, Japan)
2000	<i>Systematization for international horizontal collaboration is promoted through discussion in each country.</i>	
	Jan	iDNS is explained by JPNIC at the Industry-Academic-Government Technology Exchange Meeting (Kumamoto, Japan)
	Feb	iDNS BoF is held at IWS2000 (Tsukuba, Japan) Waseda Univ. and Toyohashi Univ. of Technology also present research papers.
		APNG-APTLD Joint Workshop at APRICOT2000 Opposition emerges against business taking the lead.
		JPNIC announces approach regarding multilingual domains, aiming at active support of standardization and establishing a full-scale service.
	Mar	MINC inauguration preparation meeting is held in Seoul Multilingual Internet Names Consortium
		Explanation of IDN at a lecture after the general JPNIC assembly
		IDN WG meeting at the 47th IETF(Adelaide) 1st IDN WG meeting
		MINC inauguration preparation meeting is held in Adelaide

		1st CDNC meeting is held in Taipei	Chinese Domain Names Consortium
Apr		KRNIC-JPNIC joint meeting is held in Seoul	Information exchange between Japan, South Korea, China and Taiwan intensifies
		Development of mDNkit version 1 by JPNIC starts	Implementation of reference for promotion of standardization
May		TWNIC-JPNIC joint meeting is held in Tokyo	
		Progress report by IDN WG at IETF debriefing session in Japan	
		MINC inauguration preparation meeting is held in San Francisco	
		Explanation of IDN at the lecture after the general JPNIC assembly	
		2nd CDNC/MINC joint meeting is held in Beijing	
Jun		MINC is inaugurated in Seoul	
		Introduction of IDN among JPNIC Topics of JANOG6(Tokyo)	Japan Network Operators' Group
		JPNIC visits ISC	Efforts toward IDN for BIND are discussed
July		Multilingual Internet Names Workshop is held in INET2000 (Yokohama)	Exchange of information on efforts toward IDN in Japan, Asia, North Europe and North America.
		Demonstration of mDNkit-1.0beta in the INET2000 JPNIC booth	
		3rd CDNC meeting is held in Yokohama	
		1st JET(Joint Engineering Team) meeting is held in Yokohama	Japan, South Korea, China and Taiwan IDN system development, Cooperative Engineering Team
		mDNkit-1.0beta is released	
Aug		IDN WG meeting at 48 th IETF(Pittsburgh)	Results of research by JPNIC are reported
		2nd JET meeting is held in Beijing	
Sep		MINC WG meeting in Seoul	Deployment activity of IDN is discussed
		Naming and Nameless Conference is held at ITsAsia2000 (Singapore)	Internationalization of "Names" on the Internet is discussed

		mDNkit-1.0pre is released	
	Oct	mDNkit-1.0 is released	Compatible with ZLD and IDNRA
		State of IDN is reported at the DOMAIN-TALK meeting	
		Technical explanation of IDN is given at an APAN debriefing session	Activities of IDN WG, Efforts made by JPNIC
	Nov	JPNIC established technical rules for general-use JP domain names	Valid characters are defined clearly
		Japanese domain name testbed phase 1 starts	Name solution by RACE of “日本語ドメイン名試験.jp”
		Japanese domain name technical explanation meeting is held	by JPNIC
		mDNkit-1.1 is released	
		Internationalized com/org/net domain name registration starts	VeriSign GRS
		mDNkit-1.2 is released	
		3rd JET meeting is held in Taipei	
	Dec	IDN WG meeting is held at the 49 th IETF(San Diego)	ACE Prefix selection algorithm is proposed
		Explanation of IDN at the DNS meeting at Internet Week 2000 (Osaka, Japan)	
		Explanation of IDN at IP meeting at Internet Week 2000 (Osaka)	
		Explanation of the state of IDN at DOMAIN-TALK at Internet Week 2000 (Osaka)	
2001	<i>Registration of Japanese JP domain names, Resolution by RACE starts</i>		
	Jan	mDNkit-1.2.1 is released	
		Explanation of IDN at Internet2/MINC Joint Workshop (Honolulu)	
		MINC meeting is held at the same workshop	
	Feb	Technical explanation of IDN at Information Network Technology Lecture (Kumamoto)	
		Explanation of IDN at a lecture after the general JPNIC assembly	
		Technical explanation of IDN at IWS2001	
		Priority registration period of Japanese JP domain names starts	
		mDNkit-1.3 is released	
		4th JET meeting is held in Kuala Lumpur	

		MINC meeting is held in Kuala Lumpur	
Mar		IDN Committee is set up in ICANN	
		IDN WG meeting is held at the 50 th IETF(Minneapolis)	Execution of NAMEPREP and realization by ACE reach a rough consensus
		MINC meeting is held in Minneapolis	
Apr		mDNkit-2.0 is released	Compatible with IDNA, Compatibility with ZLD is abolished
		Simultaneous registration period of Japanese JP domain names starts	
May		Japanese domain name testbed phase 2 starts	Name solution by RACE starts
		Receipt of applications for Japanese JP domain names, principal registration starts	
		Status is reported by IDN WG at IETF debriefing session	
		5th JET meeting is held in Shanghai	Execution of cooperative evaluation of proposed method is agreed
Jun		mDNkit-2.1 is released	
		Technical explanation of IDN at N+I2001 Tokyo	
		Demonstration of access to Japanese domain names at N+I2001 Tokyo JPNIC/JPRS booth	
		Access to Internationalized com/org/net by MS Internet Explorer starts	
Jul		JDNA is established, Commemorative lecture is held	Aiming at the proliferation of Japanese domain names
Aug		IDN WG meeting is held at the 51 st IETF (London)	
		MINC meeting is held in London, AMC-ACE-Z(latterly known as Punycode) is determined as the ACE method	Results of JET make significant contribution
		Access to Japanese JP domain names by MS Internet Explorer starts	
Oct		Technical explanation of IDN at IAU symposium(Tokyo)	Explanation of IDN and keywords
		6th JET meeting is held in Beijing	Pros and cons of localization methods are discussed
		MINC meeting is held in Beijing	
Nov		7th JET meeting is held in Beijing	Pros and cons of localization methods are discussed
Dec		Explanation of IDN at ITU/WIPO symposium(Geneva)	

		IDN WG meeting is held at the 52 nd IETF(Salt Lake City)	Technological policy of IDN is determined
		Explanation on Japanese domain names at Internet Week 2001 (Yokohama)	
2002	<i>Technical standardization as internationalized domain names is almost finalized</i>		
	Jan	8th JET meeting is held in Taipei	Localization implementation method is discussed
		Explanation of IDN at APAN2002 Conference (Phuket)	
		mDNkit-2.2 is released	
		IDN WG Last Call starts	IDNA, NAMEPREP, Punycode
	Feb	IDN WG Last Call finished	Confirmed as the final proposal
		mDNkit-2.3 is released	
	Mar	9th JET meeting is held in Bangkok	Localization implementation method is discussed
		Final proposal of IDN WG is submitted to IESG	
	Apr	mDNkit-2.4 is released	
		JDNA general assembly, lecture is held	
	May	Japanese JP domain name access by MS Internet Explorer finishes	RealNames closes down its business
		Last call starts for the final proposal of IDN WG	IETF
	Jun	Access to Internationalized com/org/net by MS Internet Explorer finishes	
	Jul	IDN WG meeting at the 54 th IETF(Yokohama) is cancelled	Due to the decision to wait for the results of the IESG last call
		10th JET meeting is held in Yokohama	
	Sep	idnkit-1.0pr1 is released	Successor of mDNkit, Complying with IDN standard
		JDNA/MINC Joint Workshop is held string.	
	Oct	JPRS starts distribution of Plug-in for MSIE, compatible with IDN	i-Nav
		IESG approves publication of RFC related to IDN	IDNA, NAMEPREP, Punycode
	Dec	RFC of STRINGPREP is published	RFC3454
2003	<i>Compatibility of applications with IDN is promoted by publishing RFC, registration of domain names in own language starts in each country</i>		
	Jan	VeriSign starts Web Based Navigation	
	Feb	“XN—“ is chosen as the prefix of IDN	
	Mar	RFCs related to IDN are published	RFC3490, RFC3491, RFC3492
		idnkit-1.0 is released	
	Apr	IETF IDN WG close	

	Jun	ICANN issues IDN Guideline Version 1.0	
		Mozilla-1.4 compatible with IDN is released	
	Jul	Japanese domain name testbed phase 2 finishes	
		Netscape-7.1 compatible with IDN is released	
		Name resolving of Japanese JP domain names by Punycode starts	Toward usage compliant with RFC
	Aug	South Korea(.KR) starts registration IDN	Hangul domain names
	Sep	IDNConnect is held, sponsored by JDNA	Interoperability of RFCs related to IDN is confirmed
		Opera-7.2 compatible with IDN is released	
	Oct	Poland(.PL) starts registration of IDN	Polish domain names
	Nov	Taiwan(.TW) starts registration of IDN	Chinese domain names
IDN-OSS starts activities		IDN Open Source Software	
2004	<i>Native-language domain names expand further, Internationalization activities spread regarding domain names such as URI</i>		
	Jan	MUSEUM starts registration of IDN	European language
	Feb	Safari-1.2 compatible with IDN is released	
		JPRS starts "Japanese JP Navi"	
		IANA starts registration of IDN language table	
		.INFO starts registration of IDN	German domain names
	Mar	Germany(.DE) starts registration of IDN	
		Switzerland, Liechtenstein and Austria start IDN	.CH, .LI, .AT
	Apr	JET Guideline for IDN is issued as RFC	RFC3743
	Jul	Thailand(.TH) starts registration of IDN	
	Aug	IETF last call for IRI starts	Internationalized URI
	Oct	.BIZ starts registration of IDN	German domain names
	Nov	IDNPROV BoF is held at IETF	Discussion on expansion of IDN of domain name registration protocol
	Dec	Microsoft expressed intention to make IE comply with IDN by the end of 2006	At ICANN IDN Workshop
		Cell phone compatible with Japanese domain names is released	au W21CA
		Compatibility of browsers for incorporation "NetFront" with IDN is announced	ACCESS
2005	Jan	"NetFront v3.3" compatible with IDN is released	ACCESS

■ Appendix: IDNConnect

IDNConnect, an interoperability testing event hosted online by JDNA, was held from September 23 to 27, 2003 with the assistance of Mr. Paul Hoffman, one of the authors of the IDNA protocol, in order to confirm that software compatible with the IDN protocol (RFC3490, 3491 and 3492) complies with the standard and has interoperability.

At IDNConnect, interoperability is confirmed by applying more than 120 test items and test data prepared by the sponsor for implementation by participants and checking whether data matches the expected results given for the test item.

The following is the original final report made by JDNA.

IDNConnect

Interoperability testing for internationalized domain names

September 23 - 27, 2003

Welcome to the site for IDNConnect. The online event greatly enhanced the usefulness of internationalized domain names by testing software that uses the IDNA protocols.

Final report of the event

The IDNConnect workshop, held online during the fourth week of September 2003, was attended by eight organizations from all over the world representing a wide variety of internationalized Internet software. The workshop succeeded in primary goals of improving the interoperability of IDNA-enabled software, and proving that the IDNA specification is ready to move forwards on standards track in the IETF.

The testbed used in the IDNConnect event consisted of over 120 tests of using international characters in domain names. Participants in IDNConnect tested web browsers and plug-ins, mail clients, zone editing programs, and programming toolkits that will be used by other developers who want to use the IDNA standard (RFCs 3490, 3491, and 3492) in their own software.

While some interoperability events are used to show how well individual packages

work with a standard, IDNConnect's primary focus was to help developers see where their software did and did not yet conform to the IDNA standard. Almost all participants said that the event help them find bugs in their software, although most of those bugs were in the "edge cases" of the standard that few typical users would possibly experience. All those participants also said that the event allowed them to fix their software during the event so they could verify that the bugs were fixed.

Part of the IETF standards process is to validate that a specification has multiple interoperable implementations that are derived from different sources. The fact that many IDNConnect participants could show that they fully complied with the standard by the end of the event will help in a report that will be prepared for the IETF in order to move the RFCs from Proposed Standard to Draft Standard.

IDNConnect was sponsored and paid for by JDNA, the Japanese Domain Names Association. The JDNA promotes the active deployment of Japanese domain names in Japan and throughout the world. JDNA's support of IDNConnect meant that there were no registration fees for the participating organizations.

Further, JDNA has announced that it is making the tests from the event's testbed freely available from the IDNConnect web site to developers of IDNA-aware software. This will allow all developers of internationalized software, whether or not they participated in the IDNConnect event, to test their software against the suite that was used during IDNConnect. The tests will be maintained and added to in the future based on input from the wider Internet community. As part of the development of the testbed, JDNA sponsored the creation of a complete set of interoperability tests for the entire IDNA specification.

For more information on the IDNConnect event, please contact the JDNA secretariat at <idnconnect@jdna.jp>. If you have any questions about this site or the testbed, please contact Paul Hoffman, the convener of the event, by sending mail to <phoffman@imc.org>, or by phoning +1 831-426-9827.

IDNConnect was sponsored by JDNA.

■ Regarding the Japanese Domain Names Association

The Japanese Domain Names Association (JDNA) was established in response to expectations of users of the Japanese language, making domain names more familiar and easier to use for Japanese people. JDNA performs standardization activities related to Japanese domain names, supporting the development of compatible applications and improvement of the interoperability of systems compatible with Japanese domain names, thus assisting the development and distribution of application software that can handle Japanese domain names.

List of members as of February, 2005

- Japan Network Information Center
- Japan Registry Services Co., Ltd.
- NEC Corporation
- Japan Linux Association
- KDDI CORPORATION
- FUJITSU LIMITED
- Software Research Associates, Inc.
- JAPAN TELECOM CO., LTD.

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