A new kid on the block: The Turkish Pardus Linux Distribution

Pardus is the first Linux distribution specifically targeted at Turkish GNU./Linux users. In December, 2005, a group of software developers, sponsored by the Turkish National Research Institute of Electronics and Cryptology (UEKAE), an affiliate of the Scientific and Technological Research Council of Turkey (TÜBİTAK) got together to create and release the first stable version, Pardus 1.0. Since then the project has made several releases, expanded its user-base, and steadily become popular with Linux users all over the world. Pardus is known for its simplified and fast boot process, its customized YALI installer and the PiSi package manager.

Introduction

The Free/Libre/Open Source Software (FLOSS) philosophy is

Quick facts	
Name	Pardus GNU/Linux Project
Sector	Public
Start date	1st release in December 2005, but in active development since 2004.
End date	n/a
Objectives	Provide Turkish people with a Linux distribution in their own language
Target group	Turkish, the general public interested in Linux
Scope	Local and International
Budget	2.5 million Euros
Funding	Turkish National Research Institute of Electronics and Cryptology (UEKAE)
Achievements	I) Unique installer (YALI) and package manager (PiSi). ii) Faster booting process.. iii) Linux distro in Turkish language. iv) On October 31st, Pardus was Ranked 35 out of 344 Linux distributions by distrowatch.com

all about software [freedom](#) and [independence](#). The fact that there are so many Linux distributions, currently totalling 344[1], means that users and distributors of FLOSS are not limited in their choice of operating systems to configure and run their software. The *Kaptan* (welcome screen) desktop environment (*Figure 1*) helps users of Pardus do just that. Pardus is a freely available GNU/Linux operating system which offers integrated desktop features and functionalities to its users. The distribution is released under the GNU General Public License (GPL). The default and only desktop is the K Desktop Environment (KDE). Each release is distributed both as a Live-CD and as an installable ISO image which can be freely downloaded from the project's website and other external mirrors via ftp or by using P2P tools.

Figure 1: Pardus 2008 Kaptan desktop showing the Configuration Center and Package Manager

The Pardus project aims to give Turks a Linux distribution in their own language. One of the aims of the project is "to provide full Turkish support by making the character structure compatible to Turkish (UTF-8 compatibility) and by making all the messages and documents visible to users in Turkish". However, from the first version (Pardus 1.0) release in December 2005, the project took an international and multilingual dimension. Pardus 1.0 was available in English and Turkish. The current release, Pardus 2008.1 or Pardus "2008", code name *Hyaena hyaena* (Striped Hyena of the family Hyaenidae, native to both the African and Asian continents) is an update release of the project's Pardus 2008 series. The default installation languages are also Turkish and English. However, through the boot options (accessed by pressing F2) the user can choose one of the eleven languages and keyboard layouts the boot loader uses. The (Pardus) boot loader or GRUB is the program which is started immediately after a computer is powered up. It gives the dual-boot user the choice to select which operating system to run.

The Pardus project is sponsored by the Turkish National Research Institute of Electronics and Cryptology (UEKAE) under the auspices of the Scientific and Technological Research Council of Turkey (TÜBİTAK). This national project is Turkey's contribution to the variety of GNU/Linux distributions. But more important for the sponsors and project, Pardus gives Turkish GNU/Linux

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1   according to [distributionWatch](#) statistics on 15 September 2008

users language independence. Developers in the project managed to customize and integrate the [Zemberek](#) Turkish natural language processing software with Pardus so that users have access to Turkish spell checking and grammar facilities in their word processing (OpenOffice), text and chat (Kopete), Calendar (kontact), and emailing (Mailman) software.

The fact that Pardus is free, open source, and accessible software means that the scope of the project extends beyond Turkey. Server download statistics shows that the operating system is downloaded from all over Europe, in the USA, Asia, and Africa. Data from distrowatch.com[2],which maintains statistics on almost all GNU/Linux distribution, shows that Pardus is becoming a popular distribution measured by hits per day (HPD)[3]. Furthermore, plans are under way to intensify localization, add other languages so that the software is usable to an even wider audience.

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Organisation and political background

Development roadmap

The two organizations which make Pardus possible are the Turkish National Research Institute of Electronics and Cryptology (UEKAE) and the Scientific and Technological Research Council of Turkey (TÜBİTAK). UEKAE is the largest research institute of TÜBİTAK and carries out scientific research and contracts technological development in cryptology and information security, business development efforts as direct "sales" to larger corporate and government sectors. UEKAE also develops programs for large software systems. The company has as one of its aims, the development of a corporate desktop and emphasizes the need for corporate management tools. TÜBİTAK is both the funding agency for scientific and technological research in Turkey, and conducts scientific and technological research through its various departments. In September 2003, TÜBİTAK and UEKAE conducted a preliminary assessment of Turkey's IT industry requirements, the results of which showed the need for an open source operating system to be used by national security agencies. UEKAE took the lead and started the Pardus project. *Figure 2* shows the Pardus project's timeline, from the planning phase to where the project sees itself in the year 2010.

A year later, in 2004, TÜBİTAK/UEKAE jointly financed and supported the design and implementation of the Pardus project, with UEKAE having a major role on technical matters and determining the strategic directions of the project. Thus, while Pardus GNU/Linux gained prominence with the first release of its live CD in 2005, the strategic planning, design, consultation, and eventual deployment of Pardus to the general public goes much further back in time.

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2   http://distrowatch.com/, available,30/10/08
3   http://distrowatch.com/stats.php?section=popularity , available ,30/10/08
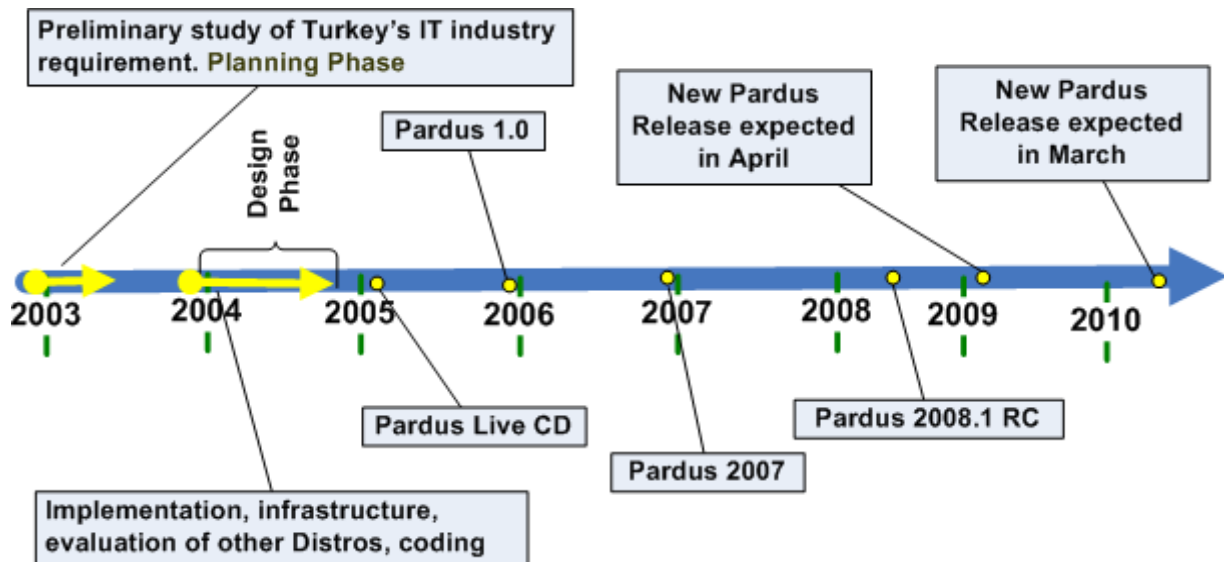
Figure 2: Timeline showing the development and evolution of the Pardus project

Shortly after its conception, the Pardus project opened its doors to external contributions, and the open source development nature of Pardus began in earnest. By the time of the first release in February 2005, the project had had several external contributors. Despite the supervision by and the involvement of a government managed institution (TÜBITAK) and a company (UEKAE), the project does not have a board of directors or corporate structure around it.

At the highest level of the project, the decision making process is lead by the Director of UEKAE, the Deputy Director for Technology, the Head of Business Development and the Pardus Project Manager. The presence of these main players in the decision making process does not affect the Pardus project's effort to talk to its growing community of users and developers. The project maintains an open and transparent decisions-making process. All technical decisions relating to the project are made via the developers mailing list so that everyone involved in the development of the project (whether employed by UEKAE or not) can contribute. In this type of open source governance model, the Pardus project director, Dr. Erkan Tekman, responsible for planning, business management, and most of the project's customer and public relations, remarked: "We are trying to form some kind of joint (sponsor/vendor and community) governance model to include the community in the decision making process."

In addition to these roles in Pardus, Tekman is also the official TÜBITAK and UEKAE spokesperson for open source related issues. When asked why UEKAE and TÜBITAK decided to sponsor Pardus, he answered: "UEKAE's charter statement has national technological independence, security and cost savings as the main goals. Pardus is related to all these goals, thus it is very natural for UEKAE to support Pardus".

The Pardus project and UEKAE believe that this joint governance structure will be beneficial for both user and developer communities. FLOSS projects have a lot to learn and benefit from this kind of governance. Pardus is not a solely vendor-centric distribution, and it is neither a community-centric distribution. For the project director, Pardus is "planning to have a hybrid structure, where the strengths of both models will be exploited. This will take time, though. We are not looking for a strong community influence on Pardus 2009 or Pardus 2010. If we take the correct steps by 2011 we may start to see the effects of this joint governance". However, the national perspective (building a

local know-how in Turkey) on which the Pardus project is being built has been shared by a large percentage of FLOSS users and developers within and outside Turkey. Looking at the rise of Pardus on the Linux distributions lists one can firmly speculate that Pardus has already begun to make its mark as a GNU/Linux operating system. This is largely due to its user-centric approach to design and development and the ease of use of the final product by average GNU/Linux users, many of whom are not interested in what goes on inside the Linux kernel, but rather what features their desktop can offer.

Roles and Community dynamics

At the time of inception in September 2003, the Pardus project team consisted of four people. Currently, the total number of developers and engineers employed by UEKAE is seventeen. Even though UEKAE has some control over the project, as far as the road map, product diversity and corporate-related features are concerned, most of the project's development takes place through open collaboration. At the time of writing this case study, 90 people have accounts to commit changes in the project's Subversion (SVN) version control system. Among these, 13 are UEKAE employees, 10 are ex-UEKAE employees, 10 are summer interns, 4 are working for UEKAE through contracts, and 17 are identified as living outside Turkey and are mostly working on internationalization efforts. Thus, the majority (~59%) of the developers or contributors to the project are not employed or paid by UEKAE. The Pardus project team of UEKAE takes care of the development of Pardus technologies, release management and schedules, internal and external projects or sub projects (contracted and otherwise) associated with Pardus, and any other strategic product development related to the Pardus project. The Pardus project does not differentiate between software developers and package maintainers. The goal of the project is "to have 200 active developers by the end of 2009, which will be 3-4 times that of UEKAE associates by then".

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Budget and Funding

The Pardus project is funded from UEKAE's internal resources, rather than from the budget allocated by the central government through TÜBİTAK. The total spending from the project's conceptualization in early 2003 until the end of 2007 was around 1,5 million Euro. An estimated amount of around 800.000 Euro was spent on the project in 2008. The overall and more realistic cost associated with the project yields an annual budget of 2.5 million Euro. This latter budget also includes salaries of internal staff working on the project. All costs associated with the promotion of the project in conferences and seminars are being paid for by UEKAE. No external developers for Pardus technologies and/or package managers are being paid by UEKAE. In addition to contributions and development efforts brought to the project by UEKAE and other volunteers from outside the company, there are a couple of freelance translators paid through contracts to coordinate Pardus internationalization and KDE 4 localization efforts. The users community management aspect of the project is being outsourced to ozgurlukicin.com portal (*Figure 3*). OzgurlukIcin, meaning "for freedom" in Turkish, is one of Turkey's largest GNU/Linux portal, offering users the latest news and activities relating to Open Source in Turkey and around the globe.
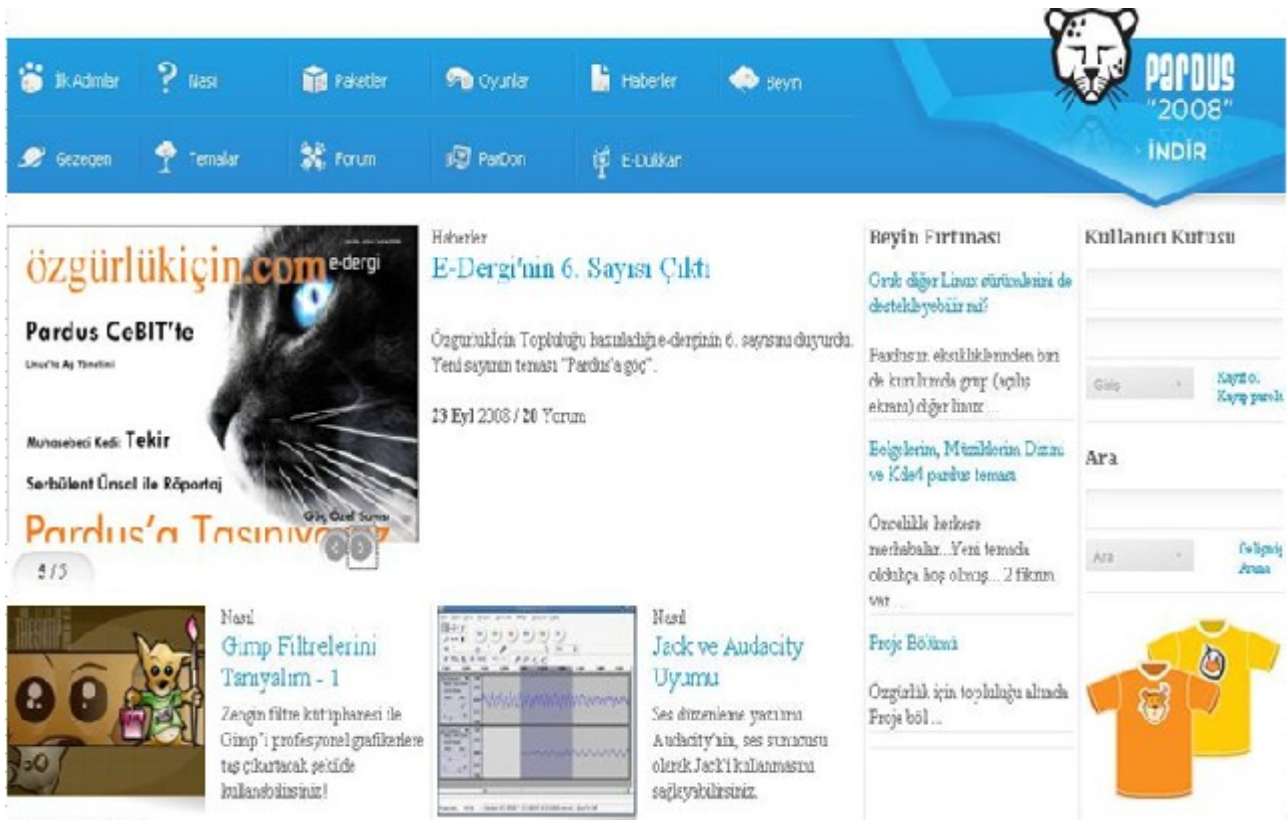
Figure 3: OzgurlukIcin portal manages the Pardus users community

In 2008, the central government of Turkey released some funds to aid the continued development and maintenance of the Pardus project. These funds constitute a small percentage of the total spending budget, but demonstrate the government's commitment to the project.

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Technical issues

In order to foster flexibility and ease of management, Pardus is subdivided into twelve sub-projects (Figure 4), each specializing on certain aspects of the Pardus distribution. Some of these sub-projects are very unique to Pardus and worth mentioning:

- The PiSi (**P**ackages *I*nstalled *S*uccessfully, as *I*ntended) sub-project, coordinates the development and integration of Pardus main package management system - PiSi. In the world of [package management systems](#), mostly implemented in GNU/Linux and Unix systems, PiSi represents a new model and approach to manage, install, upgrade, remove software packages, and resolve dependencies in Pardus Linux. PiSi is really revolutionary compared to other Linux package management systems (Synaptic in Ubuntu, APT in Debian, yum in Redhat or Fedora, etc.), not only because it is written in Python, but because of the way it uses online repositories to resolve any dependencies in the packages to be installed. The system is a collection of unique features implemented mostly in Python. The sub-project has its own documentation centre, mailing lists, and the source code of PiSi (licensed under GNU GPL) is available for download from Pardus main SVN repository.
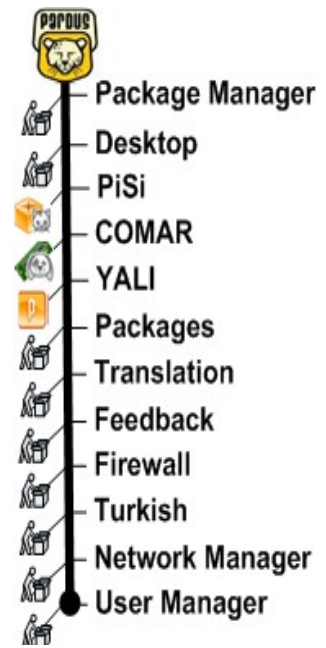

Figure 4: Sub-projects of Pardus

- The COMAR (**CO**nfiguration **M**anage**R**) tool makes sure that all software installed in Pardus operates as expected. As noted by the developers, 'smart' COMAR knows the tasks that can be provided by each application, together with the functionality they depend on. The development of COMAR is closely associated with the development of another customized future typical of Pardus. In order to drastically reduce boot time, the developers opted to build a new *init* system (the programme responsible for starting all other programs when the computer is booted) for the Pardus Linux distribution, called *Mudur.* Aided by the Mudur technology framework, the Pardus operating system goes through a sequence of steps in its initialization process shown in *Figure 5*. Mudur is written from scratch in Python with simplicity, speed and maintainability in mind. Thanks to this technology, Pardus has become one of the most simplified, flexible and fast-booting Linux distributions. The Mudur technology first appeared in Pardus 2007 *alpha. T*he project is calling upon interested and experienced FLOSS developers to contribute in the development and extension of Pardus *init* framework.
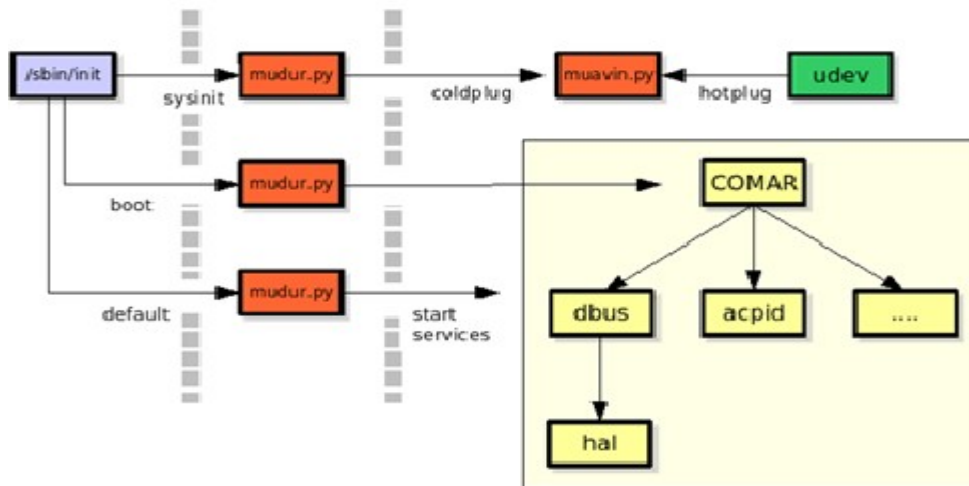
Figure 5: Steps in the Pardus initialization system, aided by Mudur technology

- The YALI (**Y**et **A**nother **L**inux **I**nstaller) sub-project is responsible for the development and evolution of the Pardus graphical software installer (YALI), which sets up the Pardus system by installing packages from the installation media (CD, USB, and other software sources) and carrying out the necessary configuration.

Collaboration and Coordination

The Pardus project like any other open source project employs various tools to coordinate the activities of developer and user communities.

- Version controlling system (Subversion or SVN): svn.pardus.org.tr

- Bug tracking system (Bugzilla): bugs.pardus.org.tr

- Several specialized Mailing lists (Mailman): liste.pardus.org.tr

- User Forums in English: http://worldforum.pardus-linux.nl/. This is the most active (with 677 registered members, 1387 topics with 7096 posts) and responsive Pardus forum. Apart from offering general assistance and discussing on almost everything (news, repositories, beginners guide, tips and tricks, etc.) relating to the Pardus project, the forum also has sections for international Pardus users in nine different languages, including Turkish.

Figure 6: Pardus encyclopedia of wikis

- In Turkish: http://www.ozgurlukicin.com/forum/. The infrastructure of this portal is provided by UEKAE. It is software developed for UEKAE under contract and its management is outsourced by UEKAE. The entire content (documentation for newcomers, how-to documents, package and game reviews, news, e-journal and forums) of the portal is contributed by the open source community.

- Alternative User Forums : LinuxQuestions.org

- Encyclopedia of Wiki community operated portals (Figure 6) in several languages: pardus-wiki.org

Widespread use

Table 1: Download statistics of Pardus

Source	Estimated downloads
Pardus 2007	300.000
Pardus 2007 CDs distributed through monthly PC magazines	800.000
Pardus 2008	200.000
Pardus 2008 CDs distributed through monthly PC magazines	400.000

About 90% of the downloads listed in *Table 1* originate in Turkey. The other active downloads are from the Netherlands, the USA and practically all over the world. The approximate number of packages (on CD and in the online repositories) was 1.200 in the Pardus 1.0 release, and 3.600 for the 2007 and 2008 releases, respectively. The project's developer mailing list has over 100 subscribers and 30-100 daily postings, while the User list has over 2.500 subscribers and 100-250 daily postings. The ozgurlukicin.com forums has over 4.000 registered users and 10-30 daily postings.

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Legal issues

UEKAE holds the trademark for Pardus, logo and logotype, and administrates the related rights. The legal issues for Pardus (software and associate artefacts) are being handled by the TÜBİTAK Legal Office, which has substantial expertises and know-how in its Legal Office, although this know-how does not fully cover software and especially open source software *per se*. The license for Pardus technologies is GNU GPL v2. This has been approved by UEKAE prior to public release of the Live CD in early 2005. The frequently emphasized public good aspect of Pardus makes the GNU GPL the ideal licensing scheme. UEKAE is also trying to handle its trademark rights in

harmony with this licence. The possibility of adopting the GNU GPL v3 license has also been examined and considered as an alternative. The overall impression was positive. Still, since some of the programs integrated into Pardus are so far sticking with GPL v2 licensing, Pardus has had to do the same. This situation may change when more projects migrate to GPLv3.

Inclusion of non-free software

The original goal of the Pardus GNU/Linux operating system is to provide an easy-to-use user experience for people new to GNU/Linux in particular and IT in general. To reach this goal, the broadest possible support for hardware and multimedia formats is a must. Thus, non-free and binary components (mostly firmware, X.org drivers, and multimedia codecs) have been included in Pardus to enable users to play music, watch movies and live streaming, etc. without having to perform additional configuration work after installing the system. Open source alternatives for these components are being followed closely. As the functionality and/or performance of these alternatives improve they will replace the non-free ones.

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Change management

One thing software development learned from open source is the apparent lack of release schedule in most projects. Open source software relies heavily on volunteer contributions and software tends to be release when sufficient number of bugs have been identified and fixed, when the software runs as expected. Even though there is continued talk about open source moving towards synchronized releases, such a synchronised release cycle would likely bring big changes to the open source world.

Pardus is intended to be released annually, but this is not a strict requirement. Release times have so far varied between six and eighteen months. For each major release, there are a number of update releases, separated by 3-4 months, which includes the most recent package updates together with the latest versions of Pardus technologies. These update releases are named after animals either endemic to or close to extinction in Anatolia. The Pardus project team monitors and works in close association with other open source projects whose software is integrated into Pardus. For example, Pardus 2009 is planned to have a KDE 4 user interface by default, so it will follow the release of KDE 4.2. Other than that, the release schedule is determined by the internal development schedule.

Release management and quality assurance

The annual releases each have a release manager, chosen among UEKAE employees. Testing Pardus software is carried out both in-house (formal testing) by UEKAE software developers and by the open source community. UEKAE also has special staff dedicated to risk identification and management in the Pardus project. UEKAE staff who form part of the core team of Pardus developers work in various areas of the project. Six people are working on package maintenance and release management, two are graphics / visual designers, and five are support engineers responsible for testing and system administration. Two work as internationalization coordinators, bringing UEKAE staff presence in the Pardus core team to 19 persons. Pardus developers can request new

packages to be included in the distribution. The packages to be included in the release CD are mostly determined by the Release Manager, and in consultation with the core team. The removal of packages is being decided by the larger developer community, if they do not simply become obsolete for technical reasons.

Starting from Pardus 2009, the community will have a larger say on which packages should be included or removed from the distribution. Since all Pardus releases, so far, are distributed on a single CD, the inclusion of more and more packages is bound to raise some technical difficulties if Pardus is to continue as a single CD distribution. The project manager points out that "for the last few releases one important constraint was the available space on the CD, due to large localization components. This was the reason for having a Turkish+English CD (with a larger number of packages) and an international CD (with all the localization packages) for Pardus 2008.1 *Hyaena hyaena*".

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Effect on government services

Pardus provides a very important public good to be used by the whole FLOSS community, in Turkey and abroad. Use of Pardus in government agencies will save several millions of Euro in taxpayers' money. TÜBİTAK suggests this portion of Pardus development should be funded directly by the government and be a not-for-profit operation. TÜBİTAK UEKAE is willing to continue to host this part of the Pardus project as it has done for the last 4 years. Development of specialized products for government agencies, corporate users, vertical markets and building of an ecosystem covering consulting, delivery, services, support, training, and such, on the other hand, is mostly related to creation of private goods and has to be carried out through a traditional for-profit commercial operation.

The Pardus GNU/Linux operating system is being deployed and used in many government and other public services including the Turkish military and defense sector, in radio and telecommunication, health and education, as well as private vendors. Pardus has given these institutions an alternative to proprietary software, helps to save cost, and lets institutions avoid being locked into a perpetual upgrade cycle with recurring licensing cost that is typical for proprietary software**.** The Recruitment Division TÜBİTAK and UEKAE plans to have a Pardus related business-line in its portfolio. This initiative is supposed to foster more cooperation between the Pardus project and government services using or planing to migrate to Linux based working environment.

Cooperation with other public bodies

Tracking the number of users of an open source product in general is a very hard task, because any interested persons or organizations can download and use the software without consulting the project. The corporate users of Pardus are either known customers of UEKAE, or ones that promote or announce their use of Pardus on e-mail lists, forums, news media, etc. FLOSS users in general and users of Pardus GNU/Linux in particular cover wide spectrum, ranging from military and defense, the media, public sector hospitals, educational institution, to workers' unions and individual

users of all ages (teenager students as well as 60-something retirees).

- **Pardus in military and defense:** Among the most prolific user of Pardus and customer of UEKAE is the Ministry of Defense of Turkey, which uses over 600 Pardus servers and about 4500 thin clients at its headquarters. The military Recruitment Division, part of the Ministry of Defence, [announced](#) switching to Pardus GNU/Linux on all of its desktops and more than 500 servers. Ankara Police Department has about 400 PCs running on Pardus.

- **Pardus in Radio and Television:** Another UEKAE customer using Pardus is the Radio and Television Regulatory Authority (RTÜK) of Turkey, which uses over 100 Pardus workstations on its digital archiving and retrieval system.

- **Pardus in the health sector:** Another user of Pardus includes Manisa Province Health Directorate in western Turkey, which has deployed over four hundred PCs running Pardus throughout the province. Another health sector, Bursa Pharmacies' Coop one hundred and fifty PCs deployed throughout Turkey's western province run on Pardus.

- **Pardus for Unions and Vendors:** The Petrol İş Workers Union in Turkey has about one hundred PCs running on Pardus at its headquarters and 13 branch offices round the country. Neziroglu Motors has about one hundred PCs running on Pardus at its headquarters and 5 branch offices.

- **Pardus in education:** Adıyaman University in the city of Adıyaman (one of the fastest growing cities in southeastern Turkey) has over 100 PCs for its administrative offices running Pardus. Another Turkish university, Çanakkale 18 Mart University, is reported using the Pardus GNU/Linux operating system in all of its students laboratories.

- **Pardus goes abroad:** A special German Academic Remix will be distributed to the students in Cologne-Bonn University and in Macedonia a number of Internet cafes will start to use Pardus 2008.1, both in October 2008.

Asked whether Pardus has had any effects on government or public services (hospitals, schools, regional administrations, ICT training centers, etc.) in Turkey, the Project manager commented:

"*The awareness regarding Linux and open source has been multiplied in the recent years, thanks to Pardus, both the distribution and the project through its publicity efforts. This is reflected in the number of corporate users, who are migrating to Pardus and open source, or considering such a migration. The size of these organizations is changing as well. Some prospective customers of UEKAE, having more than 25.000 PCs, are reflecting the effect of Pardus on government agencies very clearly. In addition, the government's willingness to support UEKAE's business plan and to fund Pardus project to a large extent is another such reflection*".

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Evaluation

Achievements

In supplying them with a GNU/Linux distribution in their own language, Pardus has filled an important need for Turkish Linux users. The project benefits both form sponsorship and harnessing the community dynamics of open source software, by getting software developers from all over the world to participate in developing and evolving Pardus. Being open source and relying largely on a collaborative approach, the Pardus project has managed to;

- successfully foster cooperation between company employed and volunteer developers,

- attract a reasonable large group of active software testers and bug reporters,

- provide the infrastructure to support its Turkish users and outsource the managements of its communities. This provides them with a single point of contact, thus shortening the communication gap between developers and users and between management (UEKAE in this case) and the rest of the project's community.

Pardus has a range of unique features and technologies, such as the Mudur start-up framework which speeds up the boot process, the PiSi package management system, the GUI YALI installer to name a few, and has contributed those developments back to the community. Pardus has become an operating system which can be installed and used more easily than many existing distributions, giving less technical GNU/Linux users an opportunity to use and experience what life like outside the Windows world.

Saving cost and spinning innovation

Since its first release, Pardus continues to attract interest from the global GNU/Linux community. Iindividuals and public sector administrations using Pardus are reporting that they are happy with performance and features. Government and public institutions in Turkey now have access to a Turkish-language operating system and a large number of applications under free licences. Besides allowing for heavy customisation, this opens up an opportunity for major cost savings where Pardus is preferred to proprietary systems. As use of Pardus spreads, Turkey's software imports and expenses are expected to decline by a sizeable amount.

Lessons learned

With releases featuring Pardus 2008.1, 2008, 2007.3, 2007.2, 2007.1, 2007, and Pardus 1.0, the Pardus project has learnt what it means to have a GNU/Linux distribution, what it means to collaborate with a diverse group of developers dispersed all over the word, and how to prepare a product to meet the needs of less technically skilled users. The most important lessons to be learnt from the Pardus project are summarized by the project director as follows:

- Patience: If you are developing open source software or building and distributing a distribution one needs to be patient. Good work takes time! This is true for technical know-how building, product stabilization, process optimization, community involvement, and

common awareness. If you rush things you usually end up worse than a more "relaxed" approach.

- Opening up. Your license, your development methodology, your decision making process, and anything having to do with the project... have to be open. Otherwise you will not attract outsiders as developers, nor as users. Opening up does not guarantee a healthy community by itself, but is necessary.

- Branding: And you should not forget about brand building and protection. Using GNU GPL you are somewhat "giving away" your intellectual property, and your brand is the only that you have. In order to have a healthy quality perception, competitive business partners and growing ecosystem you have to have a strong brand and protect it.

Future plans

A lot of reviews have highlighted the high quality of Pardus. There distribution is being used in many organizations and users with varying needs and skills are downloading the distribution and using it with a minimum of effort to configure hardware and other devices on their PCs. For now, Pardus may boot faster than many GNU/Linux distributions, upgrade existing technologies and implement new ones, but users will expect and demand more from Pardus. Developers may also like to see certain changes in the way the project is being run. While the project will not be able to satisfy everyone, future plans may go a long way in improving the current perception of the Pardus project. In particular;

- the product Manager for the upcoming Pardus 2009 release has been appointed from the community (not employed or paid by UEAKE) to represent the Pardus user community. Even though almost all decisions regarding the project are negotiated on public mailing lists, the product manager will have to listen to and negotiate with the diverse community of Pardus developers and users. Take these views into consideration, prioritise and present them to the project team for further action.

- A NetBook Remix is planned for subsequent releases, targeting a class of low-powered portable computers that has rapidly become popular in recent months.

- The Turkish community portal (http://www.ozgurlukicin.com/forum/) is going to be the main meeting point for Pardus developer and user communities. It will form the core or main platform to discuss the Pardus joint governance model.

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Conclusion

The Pardus project is a vibrant FLOSS project which succeeds because many people volunteer their time and effort to develop the software. UEAKE's involvement in the development process, directing the project's road map is one assurance that the Pardus project will survive in the long run. The fact that the majority of the downloads and organizations using Pardus are distributed all over Turkey is an indication that the goal of the project, to provide Turkish Linux users an operating system in their own language, has been met, and the system and warmly received.

The type of governance model involving sponsors, vendors, and the community envisaged by the Pardus project is a very interesting initiative and will be closely watched by the FLOSS community. If these three sectors can work together to further Pardus goals, then the FLOSS community is in for a great product. Organizations and individuals alike are benefiting from open source and taking the initiative to evaluate and benchmark various products in the markets. Each individual or enterprise will want to use their GNU/Linux desktop for a different purpose. Pardus GNU/Linux is responding well to users demands and slowly becoming the preferred Linux distribution for many people and organisations in Turkey.

Links

- The Pardus project: http://www.pardus.org.tr/eng/index.html

- Communication:

  - Pardus wiki and tutorials in English: http://en.pardus-wiki.org/Main_Page

  - Forum: Pardus Worldforum: http://worldforum.pardus-linux.nl/

- Pardus Linux selected reviews:

  - Marcel Gommans. "Pardus- ready for the major league", *DesktopLinux.com*: http://www.desktoplinux.com/articles/AT3075127327.html

  - Preston St. Pierre. "Pardus 2008: A touch of refinement", *Linux.com*: http://www.linux.com/feature/144002

  - Jakob. "Pardus 2008 Review". *FOSSwire:* http://fosswire.com/2008/07/29/pardus-2008-review/

  - Seopher. "Pardus 2008RC2", *distributionReviwe*: http://www.distribution-review.com/review-pardus-2008-rc2

  - Vasanth. "Pardus 2008 RC1 - Great distribution Ahead", *PlanetOSS*: http://planetoss.com/detail.php?id=14

  - "Pardus 2008 - More Than A Cat Meow", *ReviewLinux.com*: http://www.reviewlinux.com/?m=show&id=10876