

# **International Development Rapid Deployment Information Technology Kit**

*practical, efficient and green*

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## INTRODUCTION

Despite great advancements in technology, it is a reality today that, more and more, teams of people from multiple disciplines need to be deployed worldwide for multiple reasons. Usually, on international development matters, these deployments are in places where conditions might be difficult and usually are associated with events such as natural disasters, health related emergencies or even political transitions. Hard to reach, unreliable or non-existent utilities, and absence of reliable communication facilities are common in these places and situations.

International donors and non - governmental organizations make efforts to reach these places and assist people on multiple arenas, ranging from basic health assistance and food programs, elections monitoring. It is common to see deployments of experts on particular areas but often they lack the equipment, and in many cases, the basic skills that today are needed for day-to-day communications activities such as creating and establishing an internet connection, setting-up a wireless network, set-up and configuration of email

accounts, printers, etc. These are real needs that must be covered in order to streamline the work of these staff as well as for safety reasons. There is no longer the option of calling the IT guy to come up and fix these issues. Many of these skills are today as basic as learning to drive. No matter what position you are in it is needed.

In this white paper, I attempt to provide an explanation and a hands-on checklist of the basic equipment needed for these situations. The emphasis is on the ability to "*hit the ground running*" meaning that the need to be fully functional from the information technology perspective and be able to communicate starts immediately, often as soon as the plane lands. Because of that, all the examples, images and illustrations explained here are related to equipment that people can carry with them in addition to whatever other luggage they might travel with. It is based on my own experience in activities all over the world<sup>1</sup>.

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<sup>1</sup> It is important to note that, given the pace at which information technology evolves, the situations and technologies explained in this white paper are current as of December 2008. In few months, new products may appear on the market that make some comments and assumptions included here obsolete or inaccurate.

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## WEIGHT

## VERSUS

## EFFICIENCY AND EFFICACY

Those of us who travel often prefer lighter laptops for obvious reasons. These newer and lighter laptops are usually more expensive but also more sensitive to rough travel. When traveling to places where dust, extreme temperatures, rough roads, unstable sources of power, etc. are a constant they are not always the best option.

Ideally, the preferred laptop should combine sleekness and power but also be rugged. Rugged laptops are usually expensive so there are alternative options that can protect a laptop pretty well. The list of characteristics explained below is optional and will vary a lot depending on the places to travel but, ideally, it should include:

- Spill-resistant keyboard and touchpad
- Be able to withstand violent shocks and vibrations
- Operate at extreme temperatures
- Sealed all-weather design
- Shock-mounted removable hard drive (if not possible get a portable USB powered external drive)
- Function both at high altitude and under increased atmospheric pressure

- Full locking case with handle (or protection padded sleeve if not possible)

on the next page there are some pictures that illustrate what a full rugged laptop means. These laptops are not only expensive but also very heavy. We believe that the need for them is directly related to the location of the deployment but only in very specific situations are such an extreme rugged type of laptops needed.

There are different levels of rugged laptops (business, semi or fully). For international development projects, not related to natural disasters, a regular laptop with a protection padded sleeve should be usually enough.

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Example of a fully rugged laptop



Pictures by Rugged Notebooks

[www.ruggednotebooks.com](http://www.ruggednotebooks.com)

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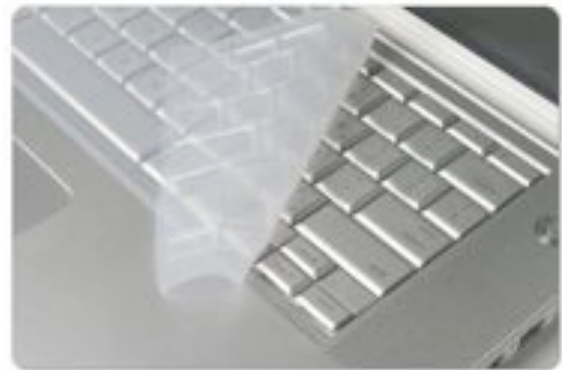
It is more important that the laptop includes the following technical specifications:

- As much memory as possible (recommended a minimum of 2 Gb)
- 802.11a/b/g Wi-Fi There is a new protocol (802.11n) which is available in the newest laptops and also in the latest wireless routers. It is OK to get it as long as it is compatible backwards, meaning that you can still use at least 802.11g which is what is currently available in most places.
- Bluetooth 2.0 (short distance wireless connection)
- DVD burner
- USB ports, ExpressCard or PC Card slots

Most of the times, budgets do not allow for the purchase of this type of rugged laptops or users do not want to carry them because they are heavier and bulkier than standard ones.

However there are additional elements that can assist in protecting a regular laptop when traveling but without having to spend as much money as on a rugged one. Also these elements can be left at home when not needed.

To protect a keyboard from dust, sand, spills, bread crumbs, key wear, sweat, finger oils, etc. I recommend a laptop specific silicone keyboard cover. They are available in multiple colors but I prefer the clear ones. They can be easily removed and cleaned. Also, they allow the laptop to close as usual. Below are some examples:



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Photos by iSkin ([www.iskin.com](http://www.iskin.com))

In order to protect the laptop itself I recommend a perfect match size sleeve. These sleeves are a very good option because they allow the laptop to be carried the laptop in any type of bag, even if they do not have a padded compartment. Also, for frequent travelers in the US, new TSA regulations allow the traveler to use these sleeves in a bin without having to take the laptop out when going through security in the airport. They also prevent scratches and

have a better grip than the laptop itself. Laptop brand and model is also not visible to other people when going through security.



Photos by Booq ([www.booqbags.com](http://www.booqbags.com))



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When traveling overseas, it is also very useful to carry a small backpack instead of a messenger or shoulder bag. This enables the traveler to have both hands free. There are backpacks that are specific for laptops (with a rugged compartment) but also with multiple pockets and sections.



I prefer a backpack when traveling on long trips versus regular shoulder bag because they are more balanced, fit more items, feel more comfortable on the back, can not fall off and free up the hands.

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## REALITY SHOCKS

When traveling to the so-called less developed countries and especially when outside of the major cities, the ability to enjoy cheap and easy communications reduces itself exponentially. It is true that GSM cell phone coverage has made major and significant progress, especially where traditional wired communications are non-existent. Paradoxically, there are places where you can get cell phone coverage but there might not be a source of reliable electrical power or even potable water.

We have gotten used to receiving and sending email messages or chatting with colleagues and friends as if the technology has been always with us. Internet provides us with the ability to interact with people independently of being across the room or across the world. The tools available through Internet (email, instant messaging, VoIP, web browsing, etc.) also provide a way to better assist communities or groups of people in need.

In this regard some knowledge of the tools already available can help a lot. As an example: there are ways of connecting a

laptop, via bluetooth, to a cell phone and using its internet connection. Speed is not great but good enough to send/receive email, check flights and even send low/medium resolution pictures. This tip is also helpful even at worldwide airports, saving the expensive fees that ISP providers charge for Wi-Fi connections.

This type of connection, using a cell phone as a wireless modem to provide Internet access to a laptop is called *tethering*<sup>2</sup> and most carriers offer it.

Although all of us are email and web users very few know the basics. When in environments that present some challenges in this matter, some basic knowledge is a must. This should cover areas such as being able to set-up printers, wireless routers to access Internet wireless and share a wired connection. Equipment required is minimum and can be very light. Below is a picture of a mini wireless router that can share a wired internet connection with over 250 users and allows the set-up of a wired/wireless network anywhere.

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<sup>2</sup> Formal definition of Tethering in cellular wireless by Wikipedia is the connection of a non-mobile device (e.g. desktop computer, notebook computer, laptop computer), to a mobile device (e.g. cell phone, PDA) for the purpose of wireless Internet access by the non-mobile "tethered" device.

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Photo by Miguel Garcia-Gosalvez

With a device like this a team of people can share a single internet connection or even share files among themselves and/or have access to a file repository (with or without Internet availability).

### BASIC MINIMUM CHECK LIST

(as of December 1, 2008)

- Medium-size laptop equipped with at least Windows XP or Mac OS X that meets the following characteristics:
  - Wireless b/g included
  - USB ports
  - 100-240 volt charger
  - Microphone and Speaker built-in (ideally with built-in video camera too)
- Rubber cover for keyboard protection
- Protection padded sleeve
- Padded backpack with multiple compartments.
- Portable and used wireless/hub router with at least three ethernet ports, corresponding charger and manuals in its own bag.
- USB charger both for 12 volts as well as for 100-240 volts input. Below is a picture of what I carry with me (those three small items allow me to charge my cell phone, my digital camera, my GPS unit, my back-up batteries ,etc.. from anywhere (in a car, plane or boat, from an outlet and from my laptop itself). The reason to use USB capable de-

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VICES is because it allows me to avoid gadget specific chargers which are not only expensive but hard to replace, especially if in a remote location. Also the same cable allows me to connect an external hard drive to my laptop for back-up purposes.



Photo by Miguel Garcia-Gosalvez

- External USB drive (recommended a minimum of 250 Gb). These units can fit in a jacket pocket and can carry the same or more information as the laptop hard disk itself. It is important to get one self-powered by the laptop so there is no need to carry an additional power supply.



Photo by Miguel Garcia-Gosalvez

- Portable power outlet. These devices not only provide additional outlets, acting as a power strip but also protect against power surcharges and many of them provide USB power, which allows for charging all small devices we mentioned before.



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Photos by Miguel Garcia-Gosalvez



Photos by Miguel Garcia-Gosalvez

- Also very important when traveling overseas is to make sure that you have all kinds of plug adapters available. There are multiple options on the market but I show a couple here for illustration purposes.



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## THINGS THAT WORK

### VERSUS

## THE LATEST FADS

We all tend to prefer the latest products because they tend to be smaller, faster or even provide more functionalities. When it comes to information technology equipment it is not always the best option to get the latest and there are certain assumptions and constraints that need to be taken into consideration.

Working in any type of environment, the key to be fully functional. For that purpose, whatever you are familiar with is the best alternative, rather than the latest model.

A clear example of it is the latest Microsoft Office release. The new functionalities compared to previous versions are not that many (especially for most of us, who barely use 10-15% of the total number of functionalities provided). The problem with newer versions is that they are more demanding in terms of processor capacity, memory, hard drive space, etc which forces up to get newer and more powerful laptops. The key element here is that more powerful does not mean more useful or more functionalities.

Also, being proficient in one version does not mean automatically being in another one. Again, a clear example of this is the latest Microsoft Office release. Version 97, 2000, XP and 2003 all shared the same menus, same icons and location, etc which meant that very little, if any, training was needed for a user to migrate from an older version to a newer one. The most recent version, Office 2007, provides a significant change in layout, icons, menus, etc. that requires some time for the user to get used to.

**Never take, on a work related trip, a technology (hardware or software) that you have never tried before or that you don't know or feel proficient with.**

How many times, in all kind of situations, have we all heard the expression – Call the IT guy! – as if he has to fix everything. Conceptually, this is a huge mistake. Same as being able to read and write, which are considered basic skills, there are today certain skills we all need to have if involved in any professional endeavor.

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**We all tend to think that newer is better. It is not always the case but most important, when being deployed it is not a good time to test new stuff.**

No matter which area of expertise you are in, there are some basic information technology related skills that everybody should have. Miniaturization today permits a single person to travel with the equipment needed to provide voice, video, and internet access with decent speeds from anywhere in the world. Equipment should travel with the people, not later. The communications needs are there the moment people arrive so you should be able, for example, to send and receive email immediately.

### CONCLUSIONS

No matter what technology you would like to use or have, the key point is being functional when you most need it. For that purpose the best strategy is to use what you are familiar with and do not try

new stuff (either hardware or software) when being away from your usual environment or from someone who can assist you.

Expect the unexpected. Do not rely on hotels, airports, airlines, etc. to provide AC transformers, plug converters, etc. Have your own ready!

Learn the basics of key technology: how to connect your laptop to a wireless network, how to do back-ups to a portable hard drive, how to upload pictures from your camera to your laptop, how to set-up a printer, how to set-up a wireless router, etc.

Be practical: sometimes a small laptop is really nice to carry but if you need to type long reports it might not be the best solution.

Stay up to date reading magazines, newsfeeds, etc. If you do not have time or interest, have a colleague or friend provide periodic briefings of what is going on. Rely on experts or at least well informed people to get advice from.