



INFORMATION *R E L E A S E*

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LEGO® MindStorms™ 2.0 Questions & Answers

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A collection of customer questions and our best answers relating to the new LEGO MindStorms Robotics Invention System version 2.0.

1) *Q: I've heard that LEGO will be selling a new MindStorms Robotics Inventions System (RIS) version 2.0?*

A: Yes, we've heard that too! They have mentioned it for some time now, and they officially introduced 2.0 at the big New York Toy Fair in February 2000. It is now available.

2) *Q: I'd heard that MindStorms 2.0 was going to be available in March 2001?*

A: LEGO pricing sheets from the fall of 2000 stated availability as March 2001. However, LEGO announced the closing of the MindStorms development office in Northern California in December of 2000, and transferred that office to a new location outside of London, England. This move disrupted their timing, and the most recent LEGO pricing sheets indicate August 2001. And yes, they finally began shipping them in August of 2001.

3) *Q: How much will MindStorms RIS 2.0 cost?*

A: MindStorms RIS 2.0 will carry the same list price as RIS 1.5 - US\$199.99 retail.

4) *Q: What are the differences between MindStorms 1.5 and 2.0?*

A: From what we can gather, the big differences include:

1 - The infrared "tower" will have a USB interface, rather than 9 pin RS-232 serial, and it will be powered directly by the USB port, instead of a 9 Volt battery as with RIS 1.0 and 1.5.

2 - Enhanced software that includes "big blocks" or modules of software routines that the user handles as a single unit, and a more intuitive interface. Users can also view the "small blocks" that make up the big blocks, for a fuller understanding.

In general, LEGO intends that RIS 2.0 to be easier for beginners to start using, and will also provide more features and power for advanced users.

5) *Q: What are the system requirements for running MindStorms 2.0?*

A: LEGO's stated "Minimum Requirements" for RIS 2.0 are as follows:

Operating System	Windows® 98 (not NT, ME or 2000**)
CPU	Pentium II 233 Mhz
RAM	32 MB
Hard Disk Space	115 MB
Mouse	Windows® Compatible
Sound	Sound Blaster 16™ Windows® Compatible
CD-ROM Speed	CD 8X
Video Display	800 X 600 SVGA with 4 MB RAM
Colors	Colors 16 bit
Modem (optional)	28.8 KBPS
Internet Browser (optional)	Netscape® Navigator or Microsoft™ Explorer

**However, be sure to read Question 16 below for more details.

6) *Q: Will there be a Macintosh version of MindStorms soon?*

A: It seems that LEGO will not yet offer a product addressing the Macintosh community's continued requests. However, they get ever closer, and the inclusion of the USB IR tower in RIS 2.0 makes all the hardware Mac ready. All they need to do now is develop the Mac software. (Perhaps Apple can help them along by offering a version of the Macintosh G4 Cube with LEGO bumps on the top...)

Mac users also see question 16 below.

7) *Q: Will I be able to upgrade my MindStorms 1.5 to version 2.0?*

A: When RIS version 1.0 was upgraded to 1.5, LEGO provided an upgrade path in the form of a CD-ROM and a small kit of pieces for around US\$20. They have stated they will again offer an upgrade path from 1.5 to 2.0, and that it will consist of just a CD-ROM.

The RIS 2.0 Upgrade kit is listed in the LEGO Shop At Home in their Fall 2001 catalog, part #3805 for \$19.95. It states it is compatible with RIS 1.0 and RIS 1.5. Order it directly from LEGO Shop At Home at 800-453-4652.

8) *Q: Will my MindStorms 1.5 RCX brick work with RIS version 2.0 software?*

A: From what we've seen, the new RCX brick is marked "RCX 2.0", so it will probably have changes to its internal program.

However, we heard straight from our LEGO source that "1.5 and 2.0 are totally compatible", so that seems to be a big yes, they should be compatible. However, see the answer to question 7 above.

9) *Q: Should I buy 1.5 now, or wait until MindStorms 2.0 comes out?*

A: As RIS 1.5 has become very hard to find, you may have to wait. MindStorms RIS 1.5 sets have been selling for more than list price on eBay and other sites. If you can find it, it might be worth buying now so you can start playing right away!

Also, if your PC does not have a USB port, or if you run Windows 95 and don't want to migrate to a newer Windows, then you might consider getting RIS 1.5 now and buying the 2.0 upgrade kit too. Then you can wait to install the upgrade someday when you're ready for USB and Windows 98 or ME.

10) *Q: What is LEGO MINDSTORMS RCX Code 2.0 software?*

A: That refers to the code that is stored inside the RCX, the big yellow computer brick at the heart of the RIS. Both earlier versions of MindStorms (1.0 and 1.5) had their RCX bricks marked "RCX 1.0". The new RIS 2.0 kits have RCX bricks marked "RCX 2.0", implying changes to its internal software. However, given the above answers about compatibility (questions 7 and 8), changes in the RCX should not affect the average MindStorms experimenter.

Once the new bricks are into the hands of the power users, we'll probably hear more about the differences between RCX 1.0 and 2.0.

11) *Q: I've heard that Japan has LEGO MindStorms 2.0 already. Why?*

A: In Japan, MindStorms RIS 2.0 has been available since November 23, 2000. Before that time, all Japanese users had to buy a non-Japanese version of MindStorms - and many did.

As MindStorms has proven immensely popular in Japan, LEGO was eager to get them a native-language version. As LEGO planned to develop a Japanese version, and as RIS 2.0 was coming along, they combined both projects and issued the first version of RIS 2.0 in Japanese.

Sometimes referred to as "RIS 2.0j", all the software and instructions are written in Japanese, and it requires a Japanese version of Windows 98 / ME to run. Some Japanese web sites sell it for around 27,000 yen (roughly US \$225, compared to \$275 for imported versions of RIS 1.5). For example see:

<http://www.genesys-net.co.jp/digila/lego/ms.html>

<http://www.yamakitsu.co.jp/cgi-bin/WebObjects/orderCitrus.woa/wa?direct=LEGO>

Interestingly, we've noted that many sources in Japan are frequently waiting for stock on RIS and the supporting kits, so its popularity continues.

12) *Q: Will my current expansion sets (RoboSports, Extreme Creatures, Exploration Mars) work with the new MindStorms RIS 2.0?*

We have heard that the software from the Expansion Kits does not work with the Japanese version, RIS 2.0j. However, the same experimenters reported that Vision Command works well.

However, the LEGO literature on the upcoming world version of RIS 2.0 states that all three expansion kit will work.

13) *Q: Where can I learn more about MindStorms RIS 2.0?*

A: LEGO might have more info on their site at <http://www.MindStorms.com/> when the kit becomes available. Other popular MindStorms sites include:

<http://www.crynwr.com/lego-robotics/>

http://www.hightechkids.org/fll/links/faq_and_links.htm

<http://www.enteract.com/~dbaum/lego/macmind/>

Send us your favorite links for inclusion in this list.

14) *Q: Who will carry MindStorms RIS 2.0?*

A: RIS 2.0 should be available through all the regular channels, including right here at <http://www.RobotStore.com>. We've been shipping them as fast as we can get them, so call us at 800-374-5764 or check our site for availability.

15) Q: Since RIS 2.0 runs under Windows 98, can it also work with newer versions of Windows such as NT, 2000 and XP?

A: At this time, LEGO specifically states “not compatible with Windows NT or Windows 2000 operating systems.”

However, we’ve recently (Feb 2002) received the following from LEGO:

“Robotics Invention System was developed to install and Run on Windows 98 and Me Operating Systems. When the Windows XP Operating System was released, testing showed that Robotics Invention System 2.0 would install and run on it also with different installation procedure. This also applies for Windows 2k. However the last two Operating Systems have not been fully tested on, so no support is offered.

The installation instructions for Robotics Invention System 2.0 on Windows XP can be found at. <<http://MindStorms.lego.com/support/en/ris20.asp>>”

16) Q: Can I run RIS 2.0 on a Macintosh using Virtual PC software?

A: As of November 2001, Connectix Corporation, maker of Virtual PC, states “LEGO MindStorms is not compatible with Virtual PC 4.0, but that earlier versions of MindStorms will run with Virtual PC 3.0 with Windows98. Please note that the only way to get this product to run effectively on Virtual PC is by adding a hardware serial port. In other words, you will need to install an actual physical serial port on your Mac. After you install the serial port, you will need to run a script developed for VPC 3.0 to get the MindStorms system to work. The USB to serial adapter method will not work.”

So that sounds like a “no” regarding RIS 2.0, but a qualified “yes” for RIS 1.5 on a Mac using Virtual PC 3.0 software, their setup script, and given the right hardware serial port.

Check their site for details:

http://www.Connectix.com/products/vpc3_ease.html.

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That’s all for now! Please email roger@RobotStore.com with any RIS questions or clarifications you may have:

Thanks!

-- Roger and the research droids at Mondo-tronics’ RobotStore.com

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