

Timothy Perrin

Hey, I Can See My House from Here!

Starting in 1959, the United States launched a series of spy satellites that came to be known as the Keyhole satellites.

The early ones, originally dubbed CORONA, had film cameras—really good film cameras—and would eject the finished film for re-entry. Navy pilots would actually catch the canisters as they descended by parachute over the Pacific. The pictures were great, but they were always hours or days old. And the resolution wasn't that sharp, on the range of 13 metres.

That said, on its first successful mission, launched August 18, 1960, a CORONA satellite provided greater photographic coverage of the Soviet Union than all previous flights by U2 spy planes.

The CORONA satellites were later renamed the Keyhole-1 (or KH-1) satellites. By the time the US got around to launching the first KH-12 models in 1992, the resolution had improved to about 10 centimetres. The KH-12 can also take pictures well off to the side of its track and it carries 7 tons of fuel, much more than its

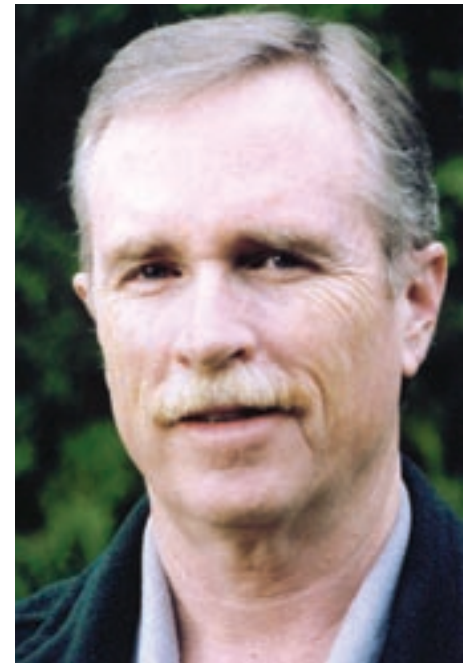
predecessors, so it is highly manoeuvrable and has a longer service life.

Today, at any given time, several Keyhole satellites are overhead. They can easily spot something as small as a volleyball, maybe even a softball. In other words, they can't read the number on your licence plate, but they can tell what colour it is.

They can easily spot something as small as a volleyball, maybe even a softball.

Until not many years ago, a few-decades-old CORONA, KH-7, and KH-9 photos released by the US government were the best you could do for images of the Earth if you didn't wear a uniform and carry top-secret clearance. But, in 1999, a company called Space Imaging (www.spaceimaging.com) launched the Ikonos satellite, a civilian satellite with capabilities equivalent to what the military had in the '80s, resolution down to about 1 metre.

Ikonos is so good that the US government bought up all the pictures it took of a bombing attack in Afghanistan in the Fall of 2001. Though the US retains



“shutter control” over satellites launched from its soil, the military had not exercised that right in advance of the attack so, to prevent publication of photos of civilian casualties, they simply bought the rights to all the pictures.

Now a company called Keyhole.com has organized satellite images from Ikonos and other satellite sources along with aerial photos; has put them together with geographic database information like borders, road names, and place names; and has put it all on the World Wide Web for anyone to use.

And it is a fantastic experience that I can only liken to flying over the landscape of your choosing.

First, the *caveat*. They do not have high-resolution pictures for everywhere. In Canada, it's only greater Vancouver and Toronto. For other places, the photos are at a much lower resolution, adequate for getting the lay of the land and seeing generally how it is vegetated, but you'll barely be able to make out freeways, much less the cars on them.

That said, there is still an incredible amount of information available both in the high-res and low-res sections.

Let me start with the software.



The first picture shows English Bay in Vancouver from an altitude of just over 18,000 feet. Simply by twirling the wheel on my mouse, I can zoom down until I'm hovering over English Bay Beach near Davie and Denman. On my monitor, I can easily make out red, green, blue, and yellow cars, a bus, even the trash cans on the sidewalk along Beach Avenue. The resolution is not, however, good enough to make out any pedestrians in this shot. But I could see the players in a San Francisco 49ers game in Candlestick Park.



Where things start to get neat is in the third shot. Here, I've tilted my point of view down and rotated it around so I'm facing north-northeast. That's Lost Lagoon at the entrance to Stanley Park at the upper left. I'm a little over 500 feet in altitude.

Now, by using my mouse, I can click and drag on any part of the screen and pull it, push it, or drag it sideways and the scene will shift as quickly as the data can be downloaded from the Keyhole.com servers. (This is not an application for a dialup connection. You absolutely need DSL, cable, or something faster.)



Using the roller, I can still zoom in or out. I can also rotate the image around my point of view. Essentially, I can "fly" over the landscape.

I wasted most of last evening revisiting places from my life. I found virtually every house I've ever lived in, old schools, even the spot on a country road near San Jose, California, where I first saw the flash of scarlet on the wing of a red-winged blackbird. Until that moment, I didn't know such a gorgeous creature existed.



I was able to zoom over the scene of my near-fatal bicycle crash in 1973. And I was able to return, albeit at lower resolution than I would have liked, to perhaps the most beautiful spot I've ever been, Havasu Falls on the lands of the Supai Indian Nation in a side canyon off the Grand Canyon. I was privileged to while away an afternoon swimming in that idyllic spot a few years ago and it is one of my heartfelt desires to get back there before I die.

I have read that insurance companies are using satellite imagery to check up on the claims of rural homeowners on just

how well they have cleared the land around their homes. As the resolution available to civilian users improves—and it will—I can see satellite images becoming as routine a part of a real estate transaction as a survey. In fact, I expect they will become a part of the surveyor's report at some point.

And, for a wise legal adviser assisting a purchaser in a transaction, a satellite photo is a way to spot potential problems that may not be visible on the ground. For instance, that beautiful forest behind the home may mask an undisclosed open-pit mine, active logging operations, or other industrial activity only 50 metres away. If your clients looked at the property on a weekend, they might not know about it, but it would be clearly visible on the satellite photos.

There may be a nearby ravine dangerous to children or the drowning hazard of a pond or unfenced pool on a nearby neighbour's property. The way things work, as soon as you can use a technology to protect your clients, you pretty well have to so . . . so you might as well get ahead of the curve on this one.

Keyhole comes in two flavours. A personal version is US\$29.95 per year and you get a seven-day free trial. If you're going to use it in your business and you want to be able to capture images like the ones illustrating this article or prepare animations like you see on CNN, you need the Pro version, US\$599 per year. Again, you can try it out for a week for free.

Ah, but I've saved the best feature for last. You can tell it to show you where all the Mexican restaurants are located. Now, that's useful software! ▲

Timothy Perrin, a former lawyer, is a technology writer for a variety of magazines. He teaches writing in the Professional Writing program at Okanagan University College in Kelowna; online for the Community College of Southern Nevada; and through his own school, WritingSchool.com.

www.TimothyPerrin.com