

How do I interoperate the IMUX 2000s SONET multiplexer with older IMUX 4000 equipment?

The Scenario:

A large investor-owned utility wanted to add new substations to their existing communications ring. They sought to use the latest IMUX 2000 SONET equipment, but the utility was hesitant to make a capital investment to replace all of their IMUX 4000 equipment already in place. Their goal was to slowly phase out the IMUX 4000 and replace the units with IMUX 2000s over the next 5 years, but they wanted to understand the compatibility limitations during the proposed transition.

The Solution:

The customer was able to achieve interoperability by following the architecture details below:

1. If a system contains a combination of 2000s and 4000 SONET units, it is advised to “group” similar chassis types together to accommodate differences in DCC channel management (Figure 1). Interleaving 2000 & 4000 node elements would break up the DCC channel and isolate node from the manager software. The DCC on the 4000 should be disabled pointing toward 2000s units.
2. Most RFL IMUX 4000 customers mainly utilize two types of mappers: The DS1 mapper & MSE Ethernet mapper configured as a UPSR operating strictly at OC-3. However, the 4000 system has various mapper cards which are incompatible or not applicable to the 2000s, as the 2000s contains only Ethernet and DS1 ports.

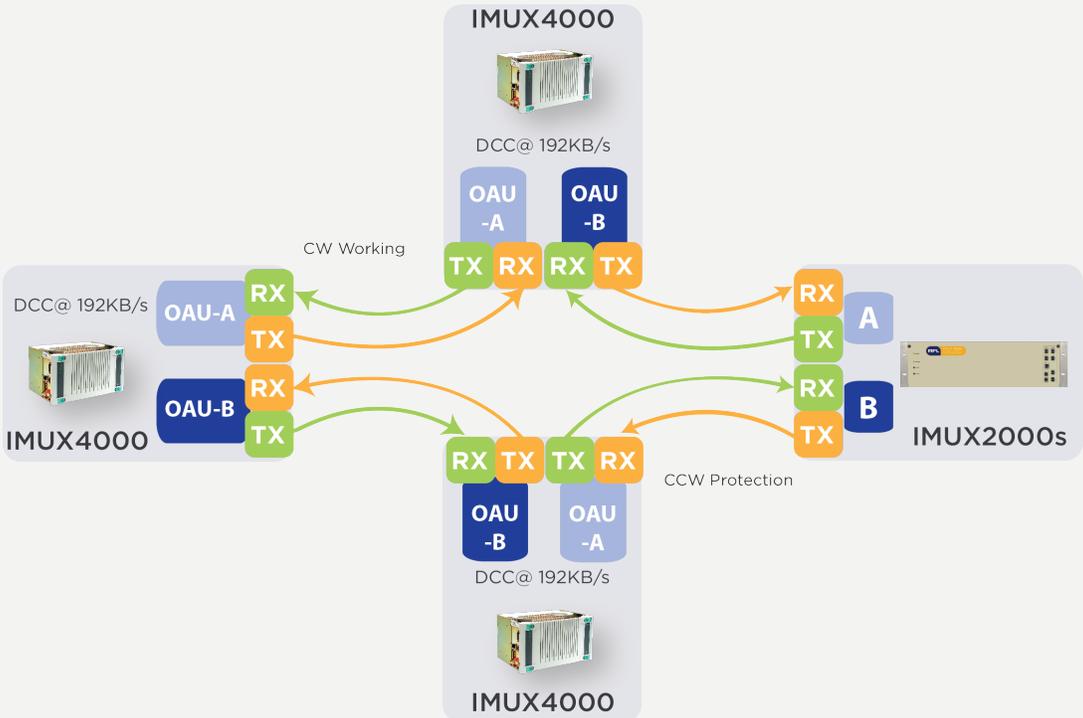


Figure 1: Mixing IMUX 4000 and IMUX 2000s units in a single ring

Because RFL and Hubbell® have a policy of continuous product improvement, we reserve the right to change designs and specifications without notice.

- The 2000S VT circuits are compatible with the DS1 Mapper. The DS1 mapper and MA491-VT port was tested in UPSR configuration. An IMUX chassis was terminated to one VT on the DS1 mapper.
- The 4000 Osirus-Vue manager software is a system-wide management package. The 2000S is managed with element management software on a per-node basis. Both systems can pass backbone payload traffic originating from their own respective mapper circuits as long as each STS is provisioned identically. The UPSR switching backup was also successfully tested with VT (4000/IMUX2000-----IMUX2000S).
- The OAU fiber connections found on the IMUX 4000 equipment interconnects the ring elements on separate interfaces. [A-connects to A, B-connects to B]. On the IMUX 2000s, the fiber interconnects A to B to achieve the same logic architecture.

The Results:

The customer worked with all of the conversion specifications and interoperability limitations listed in Table 1 and planned their upgrade accordingly.

ly. The customer was able to operate IMUX 2000s units within an IMUX 4000 ring, and can plan a staged upgrade for additional IMUX 2000 units whenever they please.

Related Products:



IMUX 2000s

The RFL IMUX 2000s SONET / SDH Multiplexer is an innovative and cost-effective solution from RFL that leverages your existing IMUX 2000 T1/E1 multiplexer and MDACS equipment to instantly expand your infrastructure for delivery of Gigabit Ethernet services, while continuing to support existing traditional TDM services.

About RFL

RFL designs and manufactures a comprehensive line of highly-reliable, mission-critical, cost-effective communications and protection solutions for the electric utility and transportation markets, oil and gas markets, government agencies and engineering consulting firms. RFL is focused on guaranteeing mission-critical data will arrive on-time, every time.

| Compatibility | OC-3 Level to OAU-to-A&B | OC-12 Level OAU-to-C&D | DS1-Mapper to MA491(VT) | MSE-Ethernet Mapper to ETH1 & ETH2 | DS3 Mapper (4000) only) | DCC Passing | Software |
|-------------------|--------------------------|------------------------|-------------------------|------------------------------------|-------------------------|---------------------|------------|
| IMUX4000 to 2000S | Yes | YES* | Yes | No | No | Not Compatible | OSIRUS-Vue |
| Comments | UPSR | UPSR | Tested with IMUX | VT Level | Not supported in 2000S | Separate Management | EMS |

Table 1: IMUX 4000 to 2000s Conversion Details



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