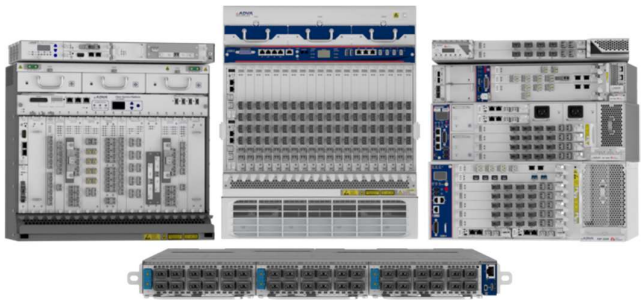
Operating FSP 3000 AgileConnect™ with High Density Shelf (Carrier)

4 days technical training



Course Description & Level

This basic user training is intended for the beginner users of HD shelves being managed by FSP 3000R7.

Based on an existing ring system with ROADMs, students will learn how to connect HD shelves to FSP 3000R7 to integrate QuadFlex™, OpenFabric™ and TeraFlex™ solutions in combination with OTN switching/protection. *Optional: CryptoMux/ CryptoMux+*

Services will be provisioned via Network Element Director NED.

Level: Introductory

Audience and Benefits

- The class is aimed for customers familiar with ADVA FSP 3000R7 product, especially ROADM modules
- Goal is to learn how to connect and operate modules in HD shelves with an existing FSP 3000R7 ring infrastructure.
- Certificate of attendance, no exam
- Small group, 8 attendants maximum

Agenda	THEORY	PRACTICE
	• System overview • Component overview • Optical system architectures • Supported topologies and protection mechanism • Management concepts • DCN • Supported applications	• Connecting HD Shelves to FSP 3000R7 • Using GUI & ADVA software (NED) • Configuring DCN • Provisioning modules in HD shelves • Database backup & restore • Software upgrade • Balancing DWDM network • Performance monitoring • Troubleshooting

Pre-requisites

Advanced about WDM and TCP/IP. Experienced with FSP 3000R7 product: either by attending the course *Operating FSP 3000 Agile Connect with ROADMs* or by having working knowledge of FSP 3000R7. Familiar with NED.

Contact

Training: training@adva.com

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Day 1 9am - 5pm	Course Overview, Introducing Training Setup, Introducing HD Shelves, Introducing HD Modules

Lab Exercises	• Accessing FSP 3000R7 optical layer
	  o 4ROADM-C96; V(L)GC EDFAs, MAP(B) modules might be part of the given setup
	  o no further modules like FSP 3000R7 native active channel cards will be included
	  o OSCM, OSFM(A)
	• Subtending HD Shelves to given optical layer
	  o Options to connect HD shelves (not TeraFlex)
	  ▪ NCU F7 – CEM HD
	  ▪ CEM9HU – CEM HD
	  ▪ OSCM (not for OSC-DCN application used) – CEM HD
	  o Options to connect HD shelves (only TeraFlex)
	  ▪ NCU F7 – T-ECM
	  ▪ CEM9HU – T-ECM
	  ▪ OSCM (not for OSC used) – T-ECM

Day 2 **9am - 5pm**	**Introducing & Operating QuadFlex, OpenFabric, Protection** ***Optional: Cryptomux or Cryptomux+***

Lab Exercises	• Explore the variety of different plug types
	• Setup the licenses (node-locked/ license server)
	• Provisioning services with NED
	  o QuadFlex network configurations (200G/150G/100G)
	  o OpenFabric modes (Multiplexer/ Cross-Connect)
	  o OpenFabric client service types :
	  ▪ 8G/16G/32G FC
	  ▪ 10G/25G/40G/100G
	  ▪ OTU2/OTU2e/OTU3/OTU4
	• Protection
	  o OTN Path protection
	  o Line protection (with e.g. OPPM)
	  o Equipment protection
	• *Optional: Encryption solution*
	  o *Explore all possible crypto settings on the network ports*
	  o *Setup the traffic*
	  o *Monitor the encryption sub layer*

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Day 3 9am - 5pm	Introducing & Operating TeraFlex Solutions

Lab Exercises	• Explore the variety of different plug types
	• Setup the licenses (node-locked/ license server)
	• Provisioning services with NED
	  o Network configurations (200G/400G/600G) with different modulation formats, baud rates and different FEC settings
	  o Client service types
	  ▪ 100GbE
	  ▪ OTU4
	  ▪ 10x10GbE

Day 4 9am - 5pm	**Maintenance & Troubleshooting What is known and what is different to FSP 3000R7?**
Lab Exercises	• Database backup/restore • Software upgrade • Replacing modules • What to do in case of …?

Additional exercises throughout the course.

- Using optical power meters, optical spectrum analyzers, fiber scope and other tools for M&T (if available)
- Using built-In tools & documentation for maintenance and troubleshooting
- Managing alarm profiles and system logs
- Finding failures using "follow the light" procedure
- Using loops for M&T
- HW&SW troubleshooting cases
- Gathering information for ADVA CTAC service teams (support data, log files)