



Global Client Value

x-config - NeXtScale Building Blocks Training v1

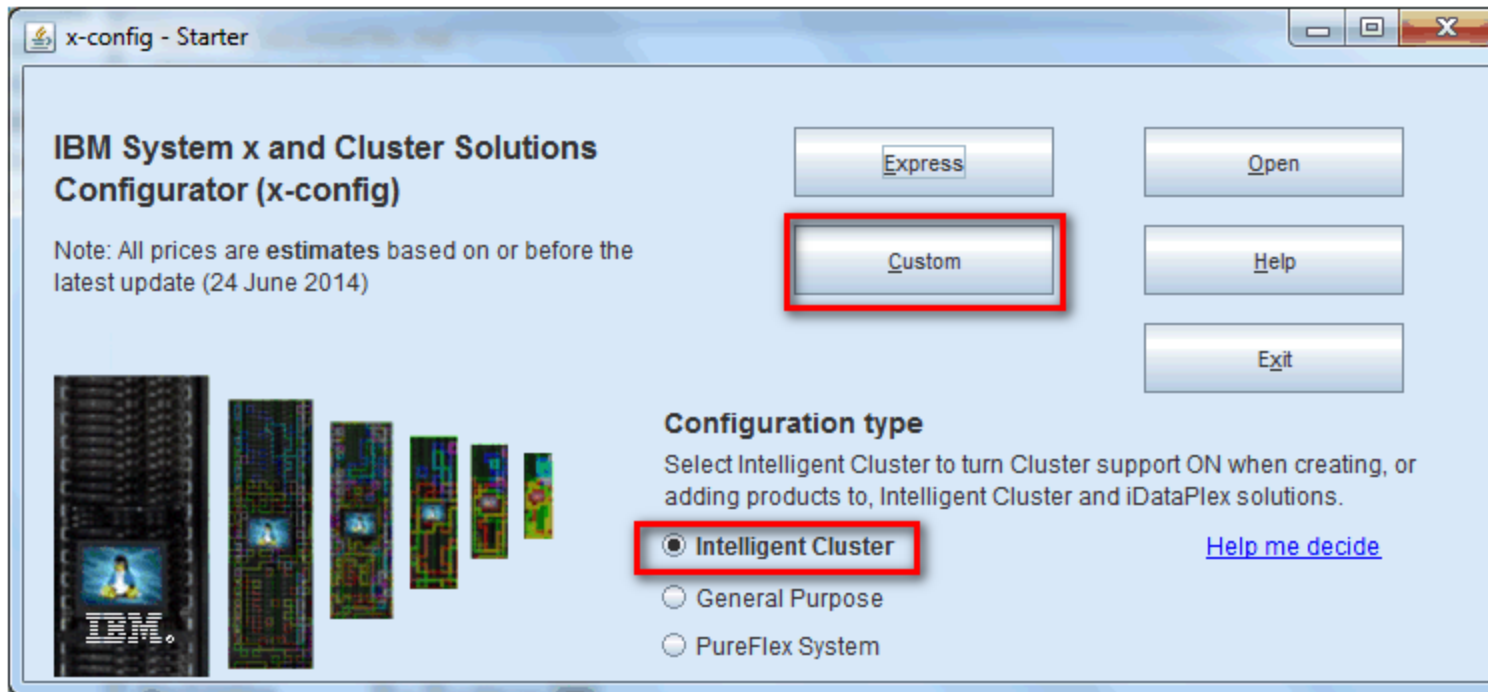
Bill Luken (bill_luken@us.ibm.com)

Global Client Value

July 14, 2014

NeXtScale & x-config - Starter Screen

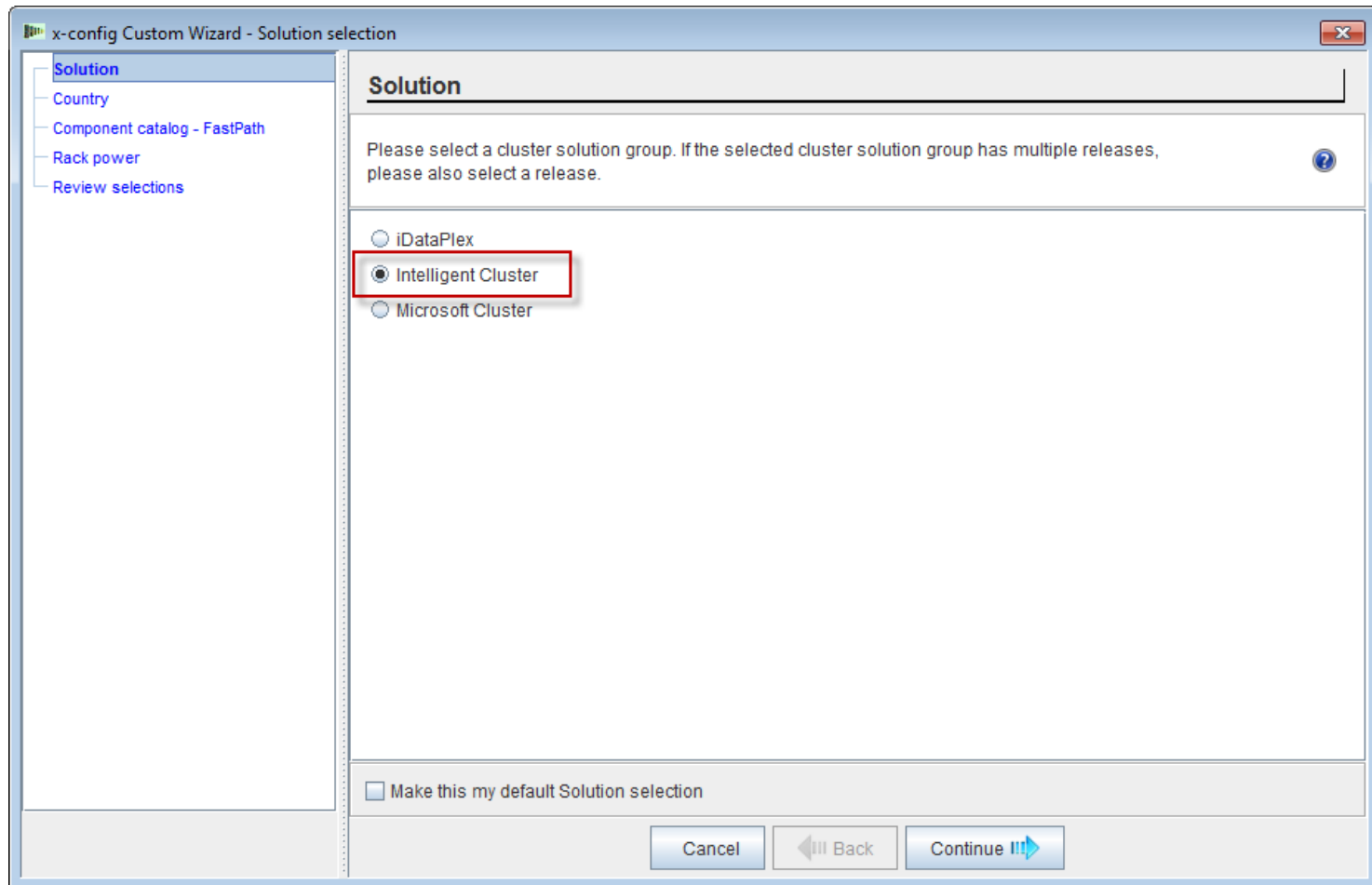
On the x-config starter screen, choose “Intelligent Cluster” and click the “Custom” button.



Note: This presentation was validated on 14 July 2014. Images in this presentation may be slightly different from production as the configurator is continually updated to reflect new features and product selections.

NeXtScale & x-config - Solution Selection

Here I chose 'Intelligent Cluster' path, but you could use the 'iDataPlex' path. Using the Intelligent Cluster path with 'Full Catalog works well.



NeXtScale & x-config - Country selection

For this training module I am using United States for my country. This module applies to all countries, as the steps and process is the same.

The screenshot shows a window titled "x-config Custom Wizard - Country selection". On the left is a navigation pane with the following items: Solution, Country (selected), iDataPlex information, Rack power, and Review selections. The main area is titled "Country" and contains the text: "Please select the country of origin for the cluster sales order." Below this is a list of countries, each with a radio button. The countries listed are: Norway, Philippines, Poland, Portugal, Russian Federation, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Province Of China, Thailand, Turkey, United Kingdom, United States (selected and highlighted with a red box), and Vietnam. At the bottom of the list is a checkbox labeled "Make this my default Country selection" which is unchecked. At the very bottom of the window are three buttons: "Cancel", "Back", and "Continue".

NeXtScale & x-config - Custom catalog/Fastpath

Choose 'Full catalog' for best configuration capabilities.

The screenshot shows a dialog box titled "x-config Custom Wizard - Component catalog/FastPath enablement selection". The left sidebar contains a tree view with the following items: Solution, Country, Component catalog - FastPath (selected), Rack power, and Review selections. The main area is titled "Component catalog - FastPath" and contains the following text: "Enabling FastPath will keep component catalog part options within supported parts, reducing or eliminating the need for special bid review. Including general racking components may require special bid review." Below this text are two radio button options: "FastPath enabled - include only Intelligent Cluster/iDataPlex supported parts (BOM)" and "Full catalog - also include general racking components for special bids (BOM + System x)". The second option is selected and highlighted with a red rectangular box. At the bottom of the dialog, there is a checkbox labeled "Make this my default Component catalog - FastPath selection" which is currently unchecked. The bottom right corner features three buttons: "Cancel", "Back", and "Continue".

NeXtScale & x-config - Rack power selection

Before configuring the solution in x-config it is best practice to know and understand your end-solution and customer requirements. These settings can always be modified/changed during the configuration process.

x-config Custom Wizard - Rack power selection

Rack power

Please select rack power options. These selections will be the default power options when you create racks and add items to a rack in this configuration. You must select power options before adding items to a rack.

iDataPlex rack power

iDataPlex rack PDU selection - C13/C14 components: Three Phase 60A/208V w/mgmt

Preferred PDU: IBM 1U 12 C13 Switched and Monitored ...

Connects to: Wall power source

Rack power

Rack front end selection - C19/C20 components: Three Phase 60A/208V w/mgmt

Preferred PDU: IBM 1U 9 C19/3 C13 Switched and Monit...

Connects to: Wall power source

Rack PDU selection - C13/C14 components: Single Phase 60A/208V w/mgmt

Preferred PDU: DPI Single-phase 60A/208V C13 Enterpri...

Connects to:

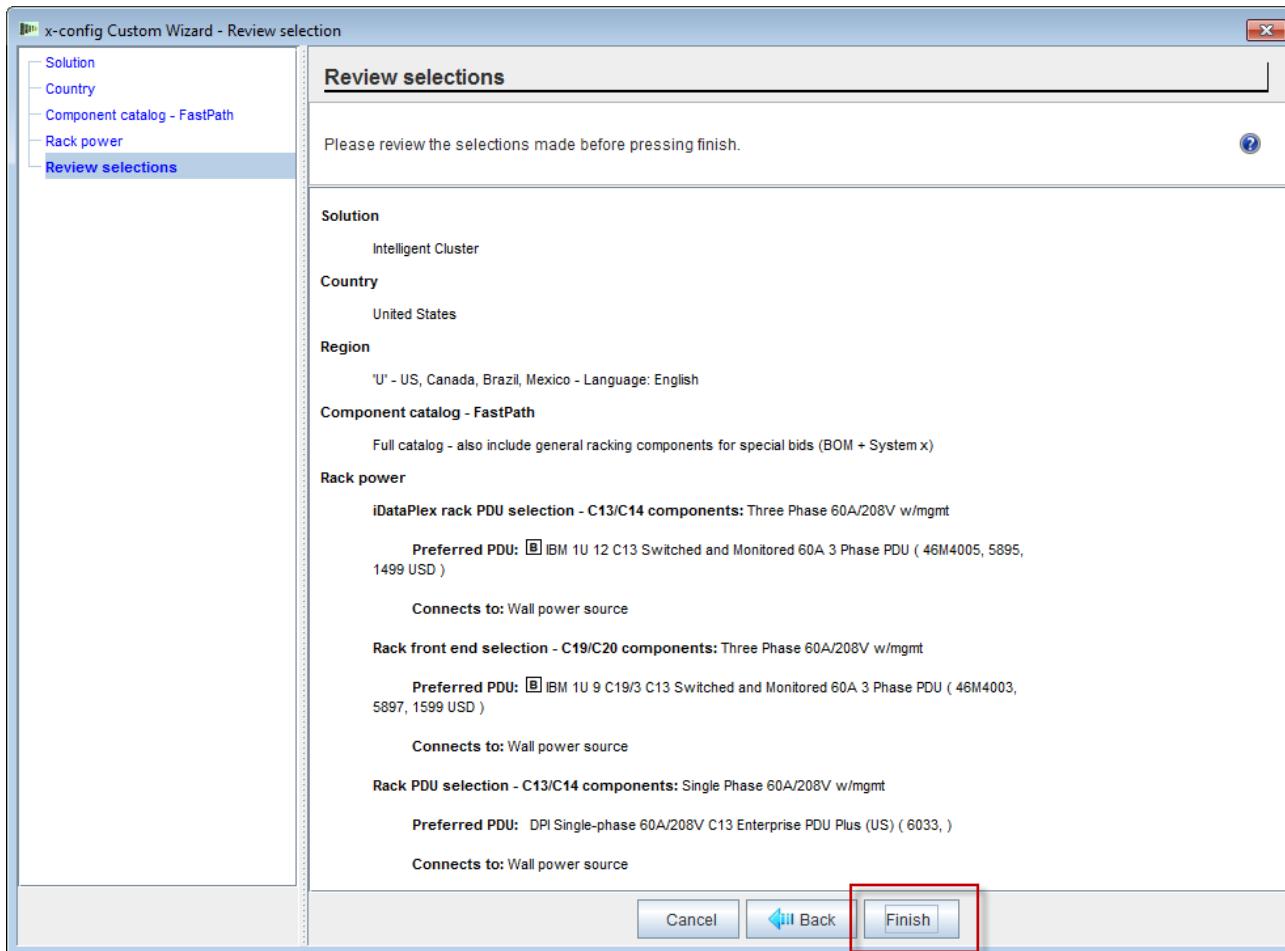
Rack front end selection - C19/C20 PDU

Wall power source

Cancel Back Continue

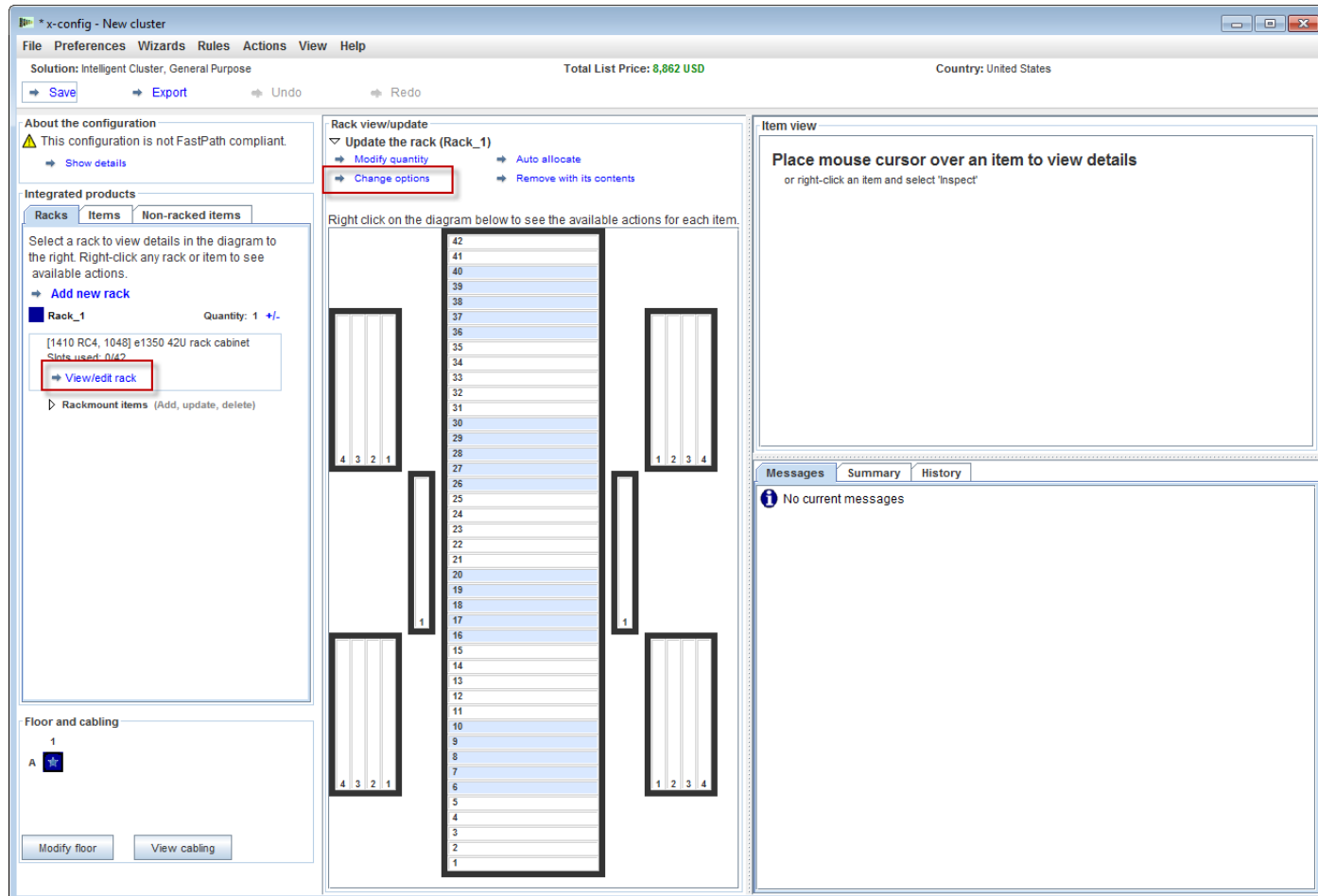
NeXtScale & x-config - Review selections

Here you can view your previous selections and go 'Back' or use to left navigation area to make changes. I am ready to start so I will hit 'Finish'.



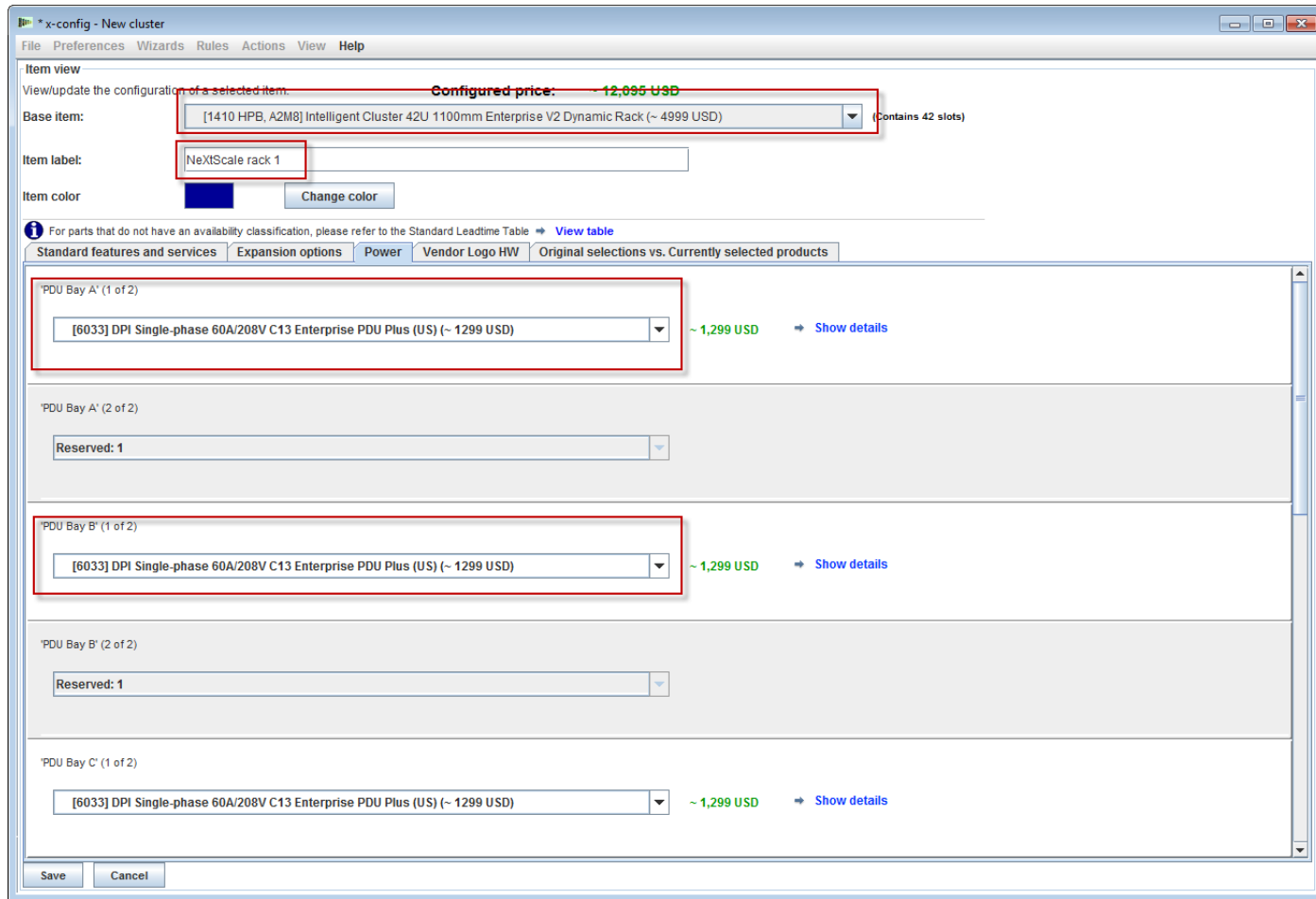
NeXtScale & x-config - New cluster configuration window

This is the 'main' configuration window where you can move around x-config and the solution you are building. The first thing I need to do is change the Rack to the 1410HPB. I can use the 'Change options' selection or the 'View/edit rack' selection.



NeXtScale & x-config - Rack change/selection

Here I selected the '1410 HPB' Rack. Then I moved to the 'Power' tab and selected my preferred PDU's. At this time I added in 3 of FC 6033. Next hit 'Save' to save and continue.



NeXtScale & x-config - Main configuration window

Now I am ready to ready to perform further customizations or start adding in my NeXtScale building blocks.

The screenshot displays the 'x-config - New cluster' application window. The title bar indicates the solution is an 'Intelligent Cluster, General Purpose' with a total list price of 8,866 USD and is located in the United States. The interface is divided into several functional areas:

- Top Panel:** Contains menu options (File, Preferences, Wizards, Rules, Actions, View, Help), a status bar with 'Solution: Intelligent Cluster, General Purpose', 'Total List Price: 8,866 USD', and 'Country: United States', and action buttons for Save, Export, Undo, and Redo.
- Left Panel:**
 - About the configuration:** A warning icon indicates 'This configuration is not FastPath compliant' with a 'Show details' link.
 - Integrated products:** A tabbed interface with 'Racks', 'Items', and 'Non-racked items' tabs. It instructs users to select a rack for details and provides an 'Add new rack' button. A single rack is listed: 'Rack_NeXtScale rack 1' with a quantity of 1.
 - Floor and cabling:** Shows floor '1' and area 'A' with 'Modify floor' and 'View cabling' buttons.
- Center Panel:**
 - Rack view/update:** A dropdown menu for 'Update the rack (Rack_NeXtScale rack 1)' with options: 'Modify quantity', 'Change options', 'Auto allocate', and 'Remove with its contents'.
 - Diagram:** A rack layout diagram with a central rack (Rack 1) and four surrounding racks (Rack 2). The central rack is highlighted with a thick black border. A vertical list of numbers (1-42) is positioned between the racks.
 - Instruction:** 'Right click on the diagram below to see the available actions for each item.'
- Right Panel:**
 - Item view:** A large empty area with the instruction: 'Place mouse cursor over an item to view details or right-click an item and select 'inspect''.
 - Messages:** A section with 'Messages', 'Summary', and 'History' tabs. It displays three messages: 'Rack power updated', 'Cabling updated', and 'All racks passed Center of Gravity tests', each with a 'More info' link.

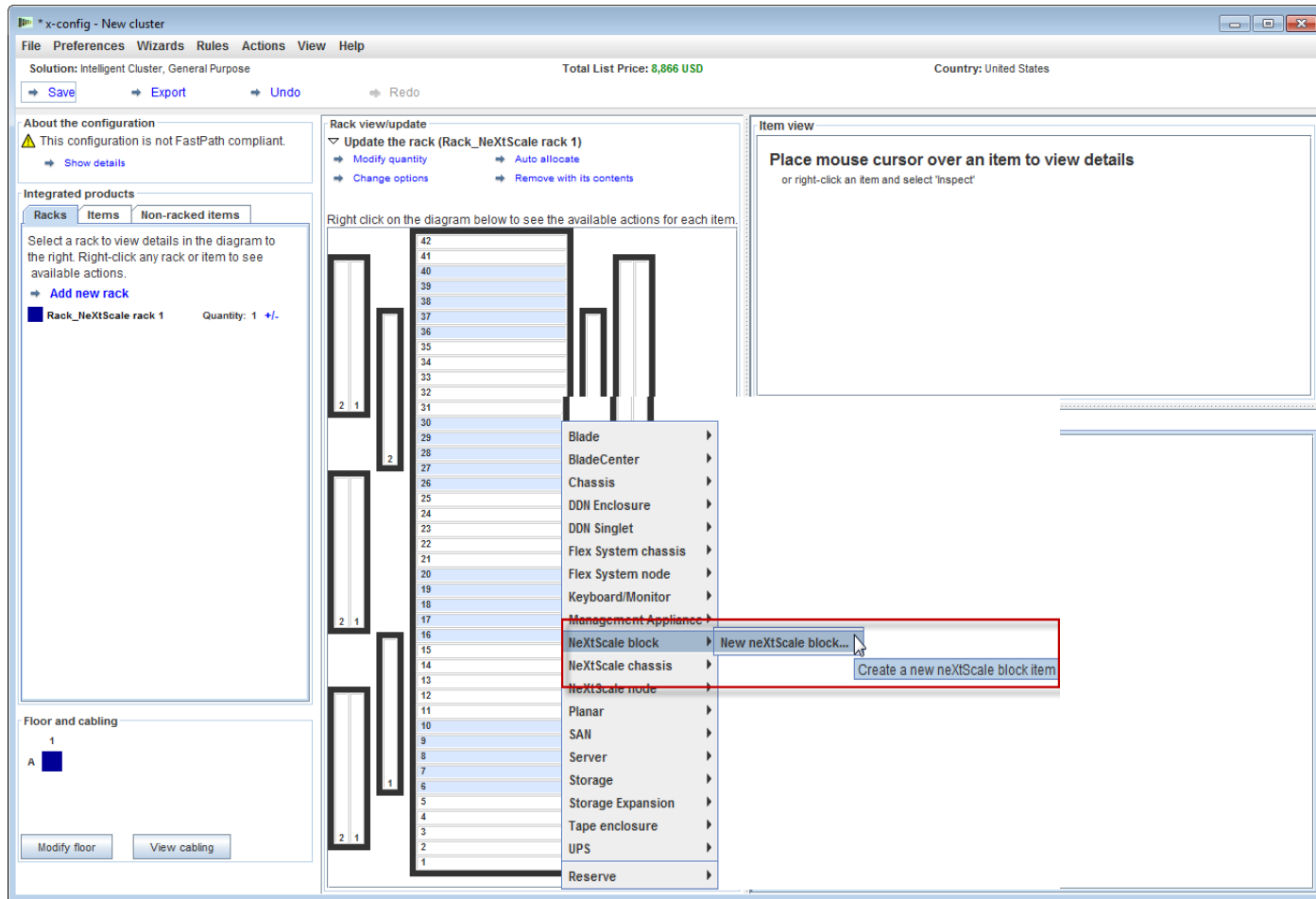
NeXtScale & x-config - Floor configuration

Here I chose 'Modify floor' from bottom left of window. Now I will do further customization and check 'Tray cabling'. This will allow for cabling to occur above the rack instead of beneath the floor.

The screenshot displays the x-config software interface for configuring a floor. The main window shows a rack configuration for 'Rack_NeXtScale rack 1' with a quantity of 1. The 'Modify floor' button in the bottom left of the main window is highlighted with a red box. A 'Floor configuration' dialog box is open, showing various settings for the floor diagram. The 'Tray cabling' checkbox is checked and highlighted with a red box. The 'Save' button is also highlighted with a red box. The dialog box includes a 'Floor diagram' section with a legend for Hot aisle, Cold aisle, and Empty aisle, and a 'Note' stating that all distance values are in meters (m). The 'Growth ratio' is set to 1:1 (Horizontal:Vertical). The 'Rack distance' is 0.01, 'Vertical distance' is 0.5, 'Cold aisle distance' is 3.0, 'Hot aisle distance' is 2.0, and 'Stack distance' is 0.0. The 'Tray cabling' checkbox is checked, indicating that cabling will occur above the rack trays instead of beneath the floor.

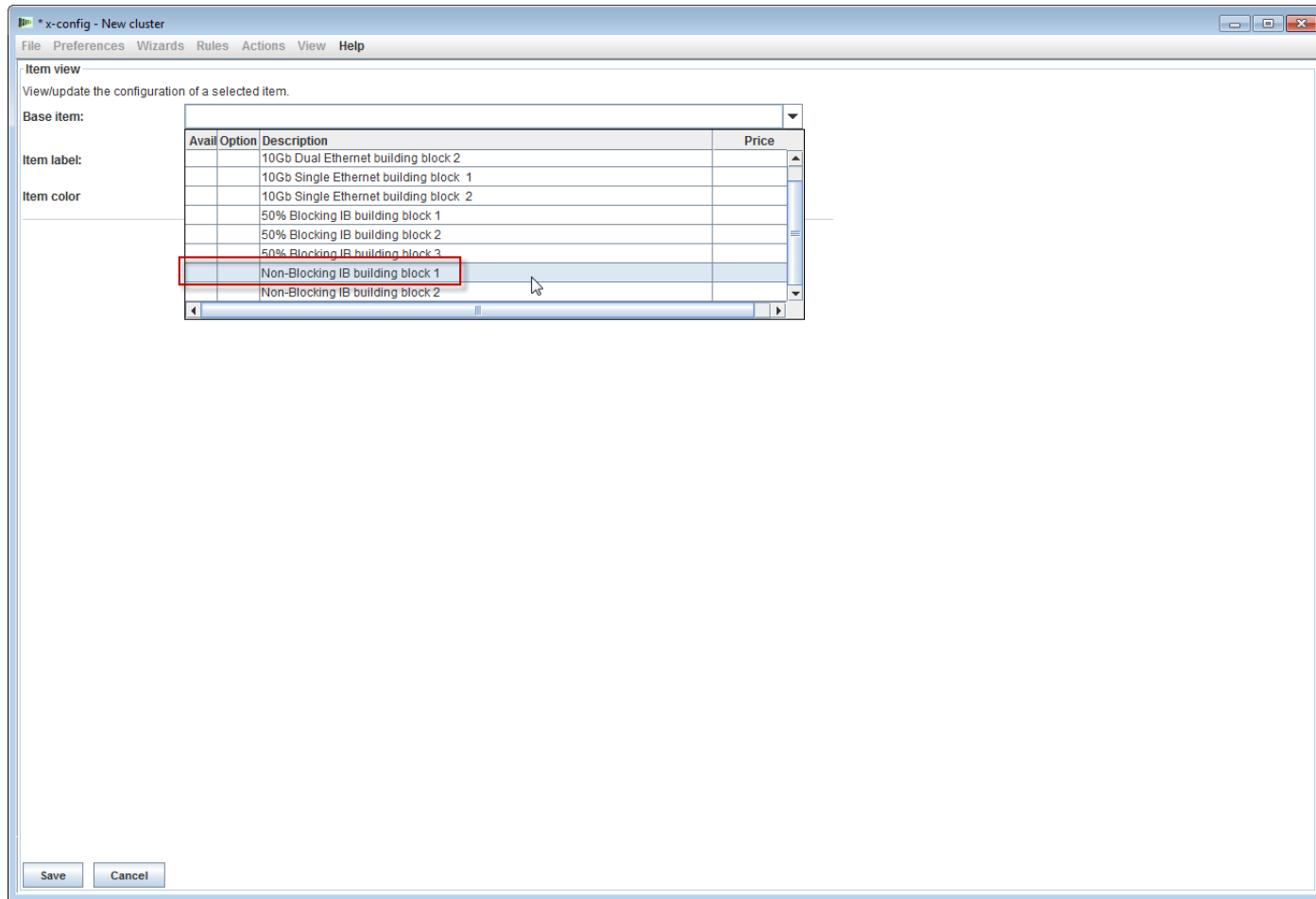
NeXtScale & x-config - Add NeXtScale block

Now I will add a NeXtScale building block. Right-click on an open spot in the rack to add a NeXtScale block. Choose 'New NeXtScale block'.



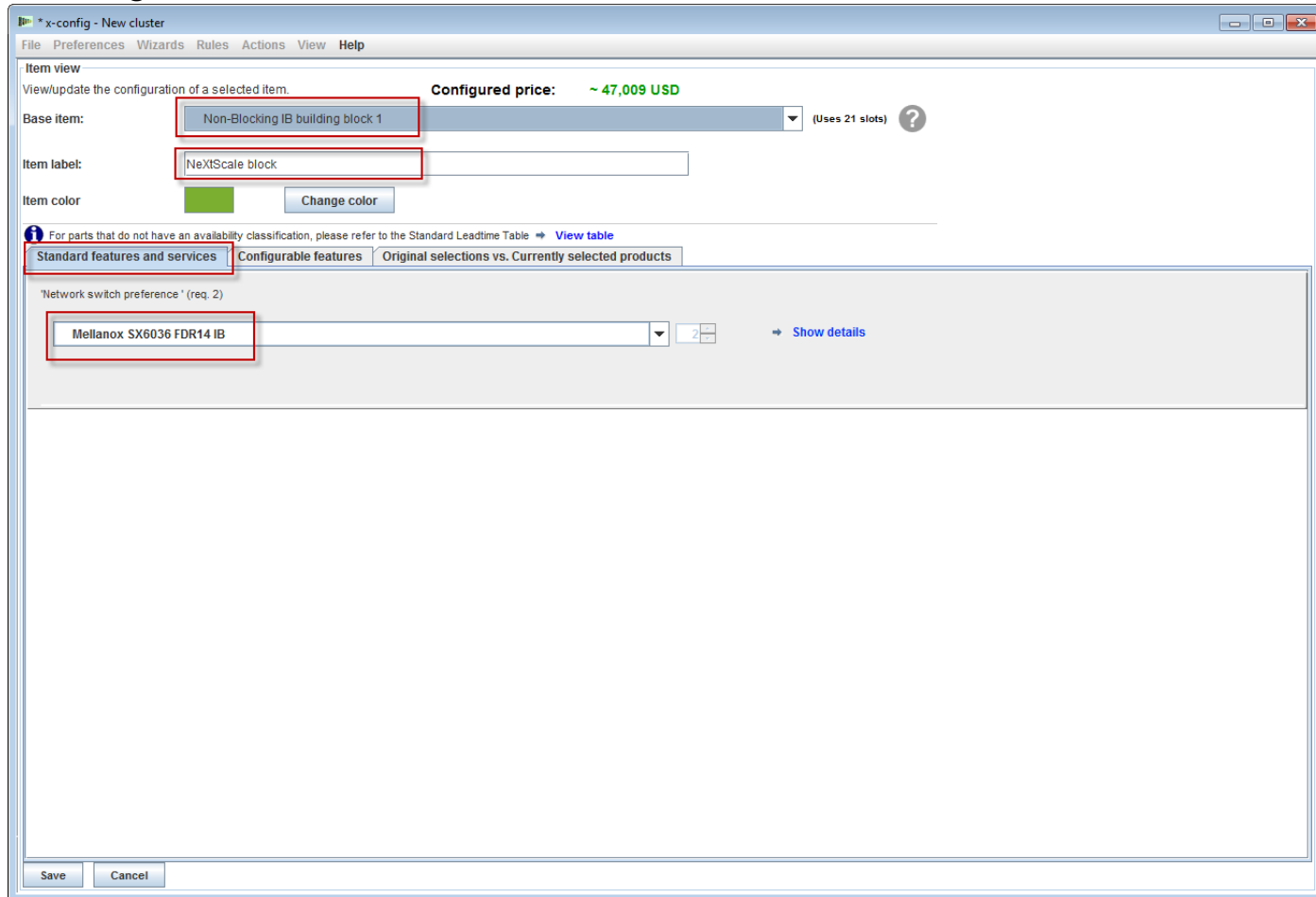
NeXtScale & x-config - Building Blocks selection

From the 'Base Item' drop down select the building block 1 for the solution you want to build. In this training module I am building a 'Non-Blocking IB' solution. I chose 'Non-Blocking IB building block 1'.



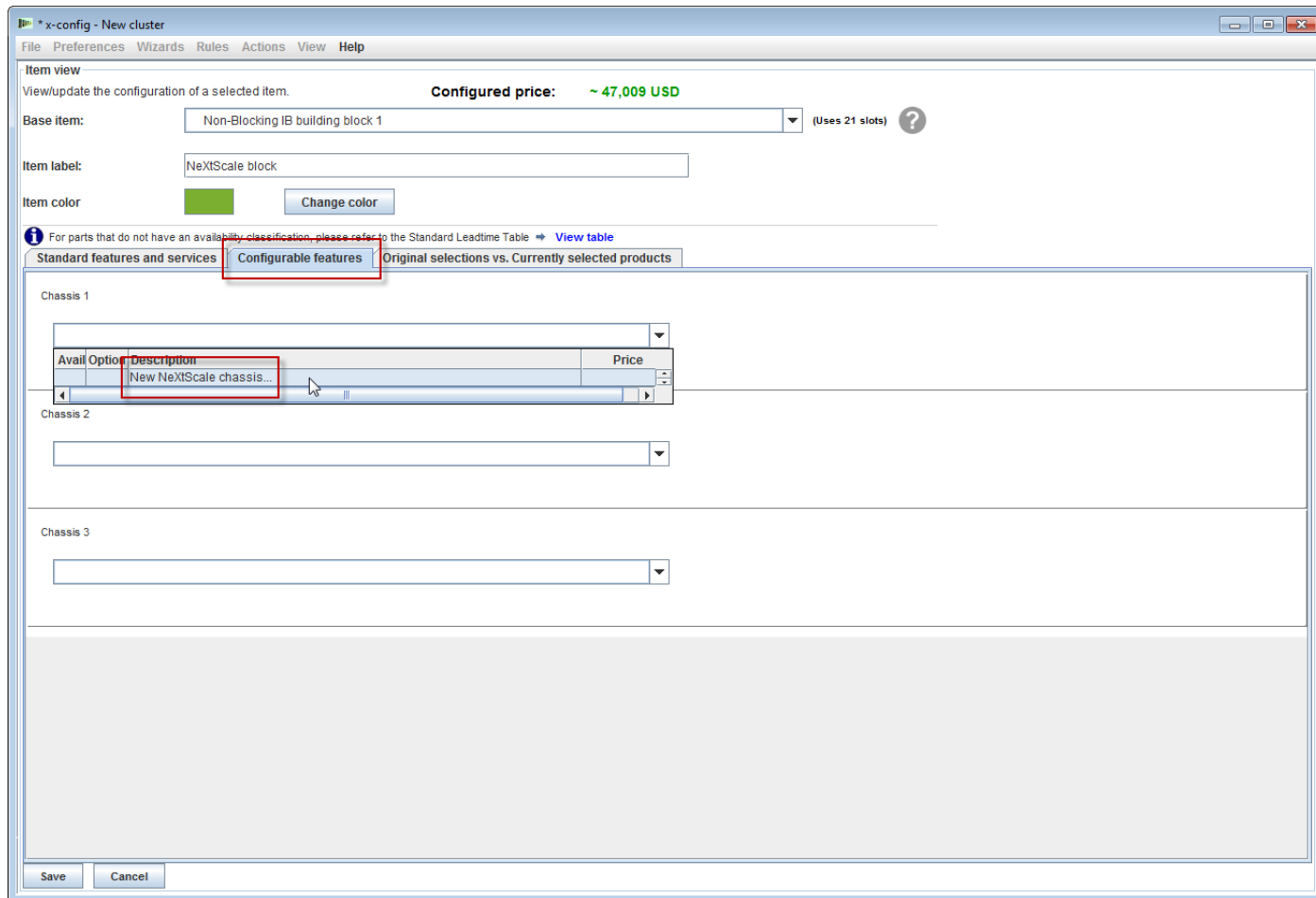
NeXtScale & x-config - Building Block 1 configuration

As a best practice it is good to set an 'Item label', no matter what type of configuration you are building. This will produce a nice clean output report for the customer. On the 'Standard features and services' tab I am selecting the 'Mellanox SX6036 FDR14 IB' switch.



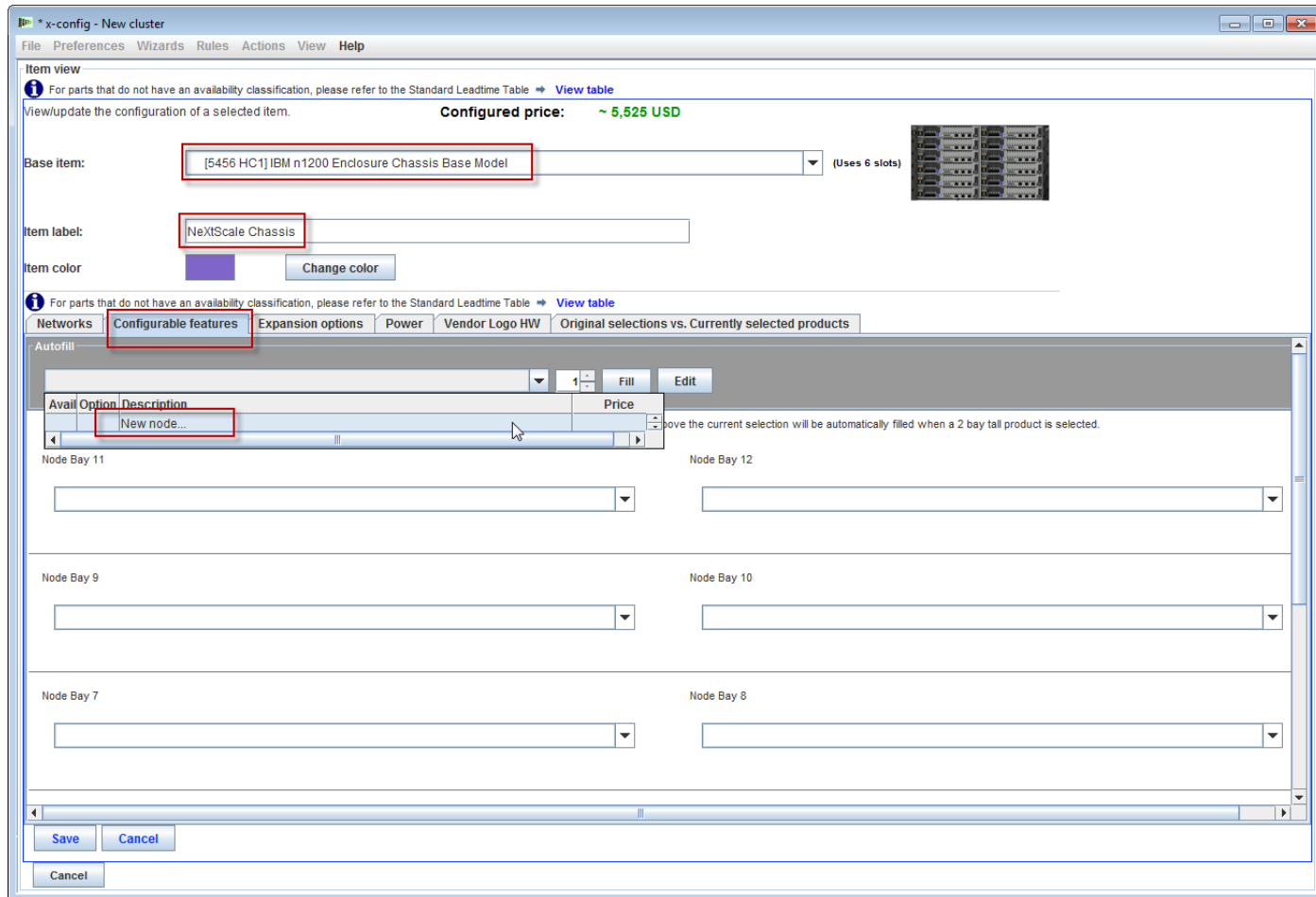
NeXtScale & x-config - Building Block 1 configuration

Next I selected the 'Configurable features' tab. Then under 'Chassis 1' drop-down I selected 'New NeXtScale chassis'.



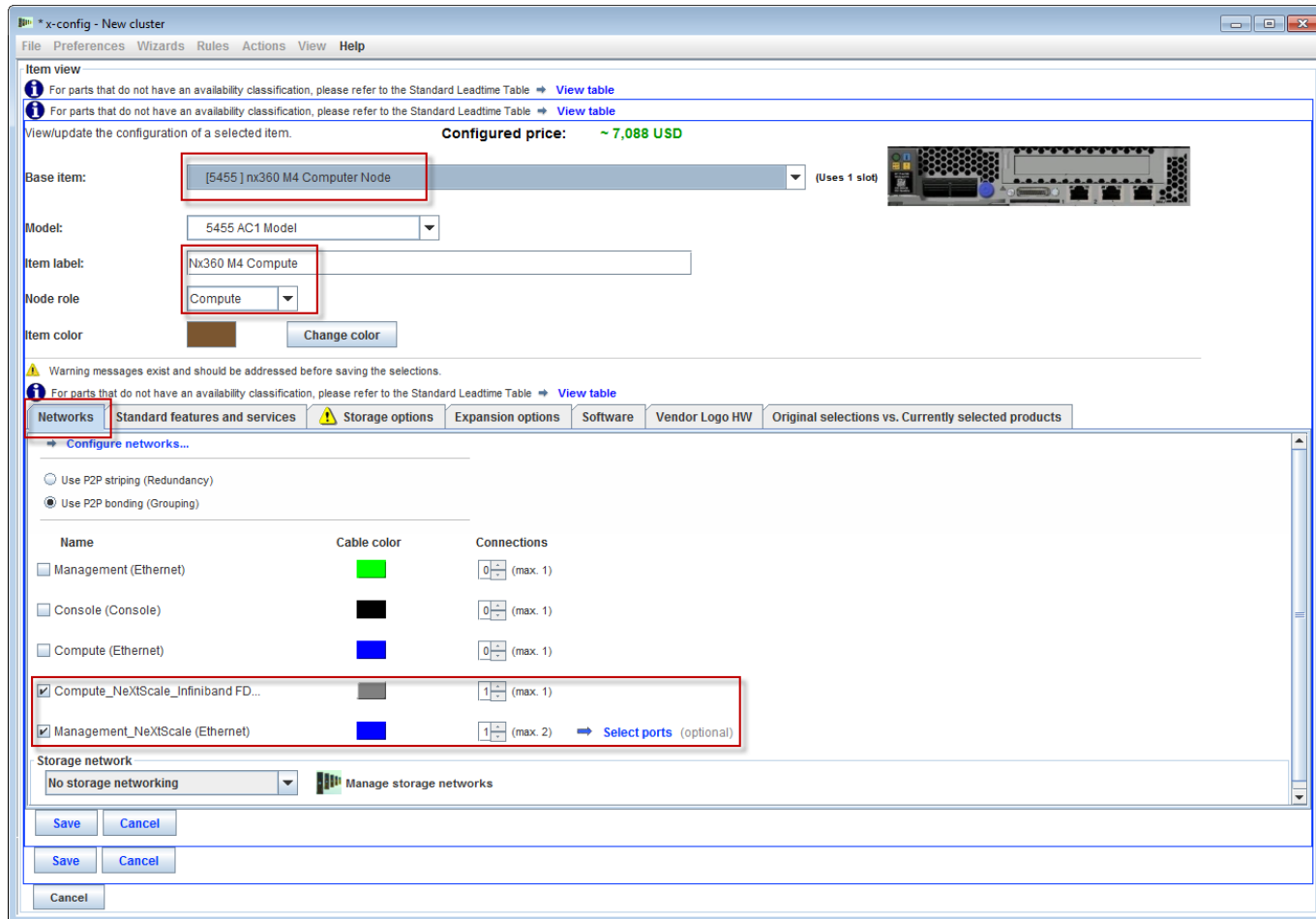
NeXtScale & x-config - Building Block 1 Chassis configuration

Next under the 'Base Item' drop-down I selected the 5456 HC1. As before, I gave it a meaningful name on the 'Item label' box. Next I moved to the 'Configurable features' tab. Under the 'Autofill' drop-down I selected 'New node'.



NeXtScale & x-config - Building Block 1 node configuration

Here I chose 'nx360 M4 Computer Node'. Then I provided an 'Item label' and selected 'Compute' for the 'Node role'. The first step is to select the appropriate networks from the 'Networks' tab. For this training module I selected **only** 'Compute_NeXtScale...' & 'Management_NeXtScale...' and **deselected all other options**.



NeXtScale & x-config - Building Block 1 node configuration

Next I moved to the 'Standard features and services' tab. Now you would customize the node as required for the customer solution. Here I selected 2 Processors and 6 Memory DIMM's. Next you would move to the other tabs and customize accordingly.

The screenshot displays the 'x-config - New cluster' application window. The 'Standard features and services' tab is selected and highlighted with a red box. The 'Configured price' is shown as ~13,069 USD. The 'Base item' is '[5455] nx360 M4 Computer Node'. The 'Model' is '5455 AC1 Model'. The 'Item label' is 'Nx360 M4 Compute'. The 'Node role' is 'Compute'. The 'Item color' is a brown swatch. A warning message is displayed: 'Warning messages exist and should be addressed before saving the selections. For parts that do not have an availability classification, please refer to the Standard Leadtime Table -> View table'. The 'ServicePac for nx360 M4 Computer Node' section includes 'Remote Technical Support' set to 'None selected'. The 'Processor - nx360 M4 * (max. 2)' section shows '[A42A] Intel Xeon Processor E5-2690 v2 10C 3.0GHz 25MB Cache 1866MHz 130W (~ 4245 USD)' selected with a quantity of 2. The 'DDR3 - 5455 * (max. 8)' section shows '[A3QL] 16GB (1x16GB, 2Rx4, 1.5V) PC3-14900 CL13 ECC DDR3 1866MHz LP RDIMM (~ 369 USD)' selected with a quantity of 6. The interface includes 'Save' and 'Cancel' buttons at the bottom.

NeXtScale & x-config - Building Block 1 node configuration

Next I selected the 'Expansion options' tab and chose the FC A2YE, Mellanox ConnectX 3 VPI...adapter.

The screenshot displays the 'x-config - New cluster' application window. The 'Expansion options' tab is selected and highlighted with a red box. The configuration is for a node with the following details:

- Base item:** [5455] nx360 M4 Computer Node (Uses 1 slot)
- Model:** 5455 AC1 Model
- Item label:** Nx360 M4 Compute
- Node role:** Compute
- Item color:** [Color selection] Change color

The 'Expansion options' section shows the following items:

- 'nx360 M4 Computer Node' (req. 1): [A41E] nx360 M4 Computer Node (~ 1115 USD) [1] Show details
- 'nx360 Mezzanine Card' (1 of 1): [Info icon] Some of the selections are disabled. To view the reasons, please click [more...](#)
- 'nx360 PCIe 16x' (1 of 1): [Info icon] Some of the selections are disabled. To view the reasons, please click [more...](#). The selected item is [A2YE] Mellanox ConnectX-3 VPI Single-port QSFP FDR IB HCA (~ 1195 USD) [Show details] [Icons]

At the bottom of the window, there are 'Save' and 'Cancel' buttons for each section, and a 'Cancel' button for the entire configuration.

NeXtScale & x-config - Building Block 1 node configuration

Next I selected the 'Software' tab. For this training module I selected 'Red Hat' Software... 'RHEL for HPC 2 Skts...'. Lastly, select 'Save'.

The screenshot shows the 'x-config - New cluster' window. The 'Software' tab is selected and highlighted with a red box. The configuration is for a 'Compute' node role. The 'Red Hat Operating System' subcategory is selected, and the 'Red Hat Compute HPC' type is chosen. The 'Years of licensing' is set to '3 years'. The description is '[0315] RHEL for HPC 2 Skts Compute Nodes Subscription 3Yr'. The 'Save' button is highlighted with a red box.

Item view

For parts that do not have an availability classification, please refer to the Standard Leadtime Table → [View table](#)

For parts that do not have an availability classification, please refer to the Standard Leadtime Table → [View table](#)

View/update the configuration of a selected item. **Configured price:** ~ 13,069 USD

Base item: [5455] nx360 M4 Computer Node (Uses 1 slot)

Model: 5455 AC1 Model

Item label: Nx360 M4 Compute

Node role: Compute

Item color: [Change color](#)

Warning messages exist and should be addressed before saving the selections.

For parts that do not have an availability classification, please refer to the Standard Leadtime Table → [View table](#)

Networks Standard features and services **Storage options** Expansion options **Software** Vendor Logo HW Original selections vs. Currently selected products

- IBM Parallel Environment
- IBM Platform HPC, Cluster Manager, and RTM
- IBM Platform Process Mgr and Application Center
- IBM Platform LSF, RTM Data Collector, and Symphony
- IBM Platform Cluster Manager Fixed Term
- Red Hat Operating System**
 - Subcategory: None Red Hat
 - Type: Red Hat Head Node Standard Red Hat Head Node Premium Red Hat Compute HPC
 - Years of licensing: 1 year 3 years
 - Description: [0315] RHEL for HPC 2 Skts Compute Nodes Subscription 3Yr
- SLES Operating System
- File system software

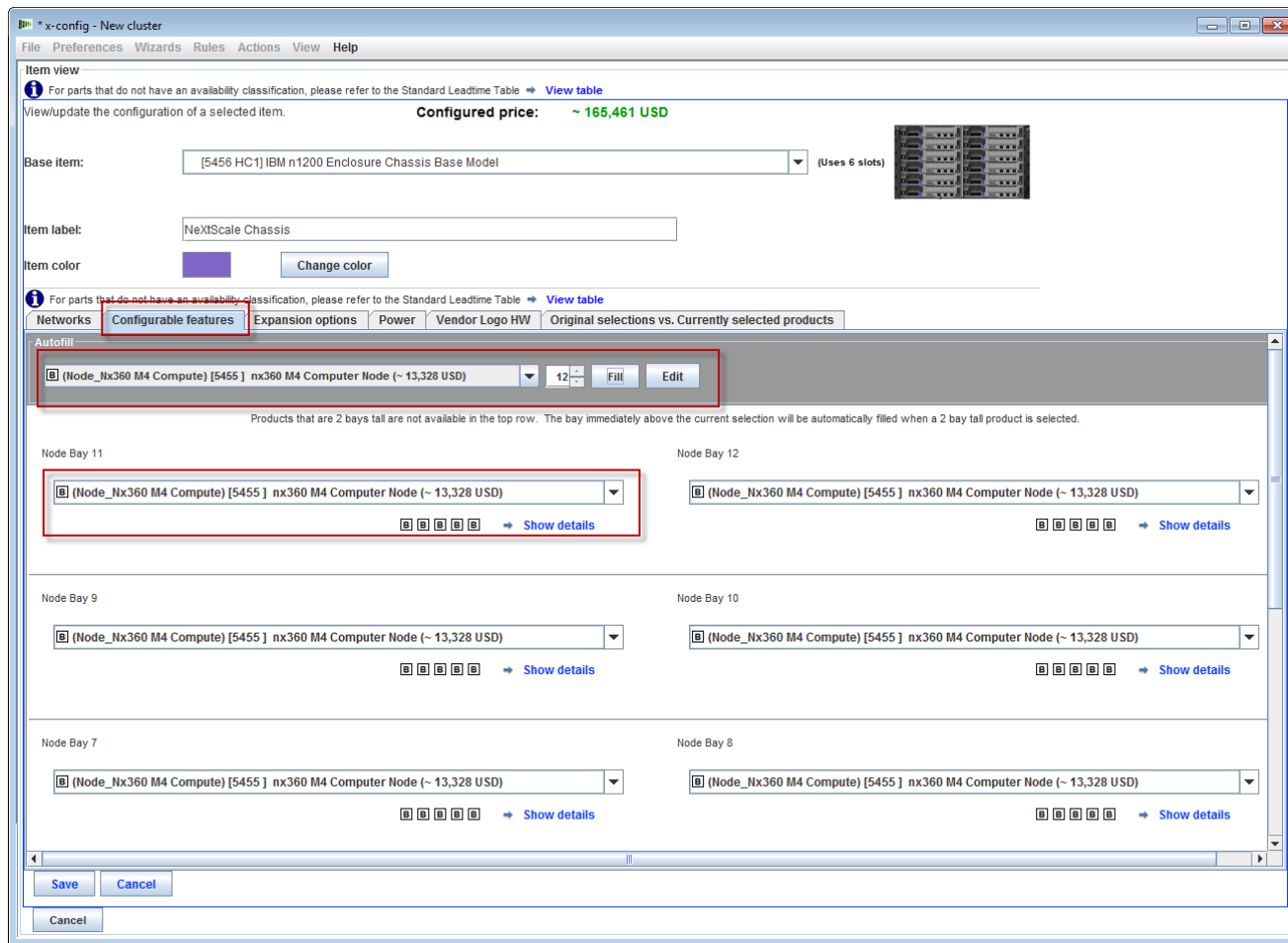
[Save](#) [Cancel](#)

[Save](#) [Cancel](#)

[Cancel](#)

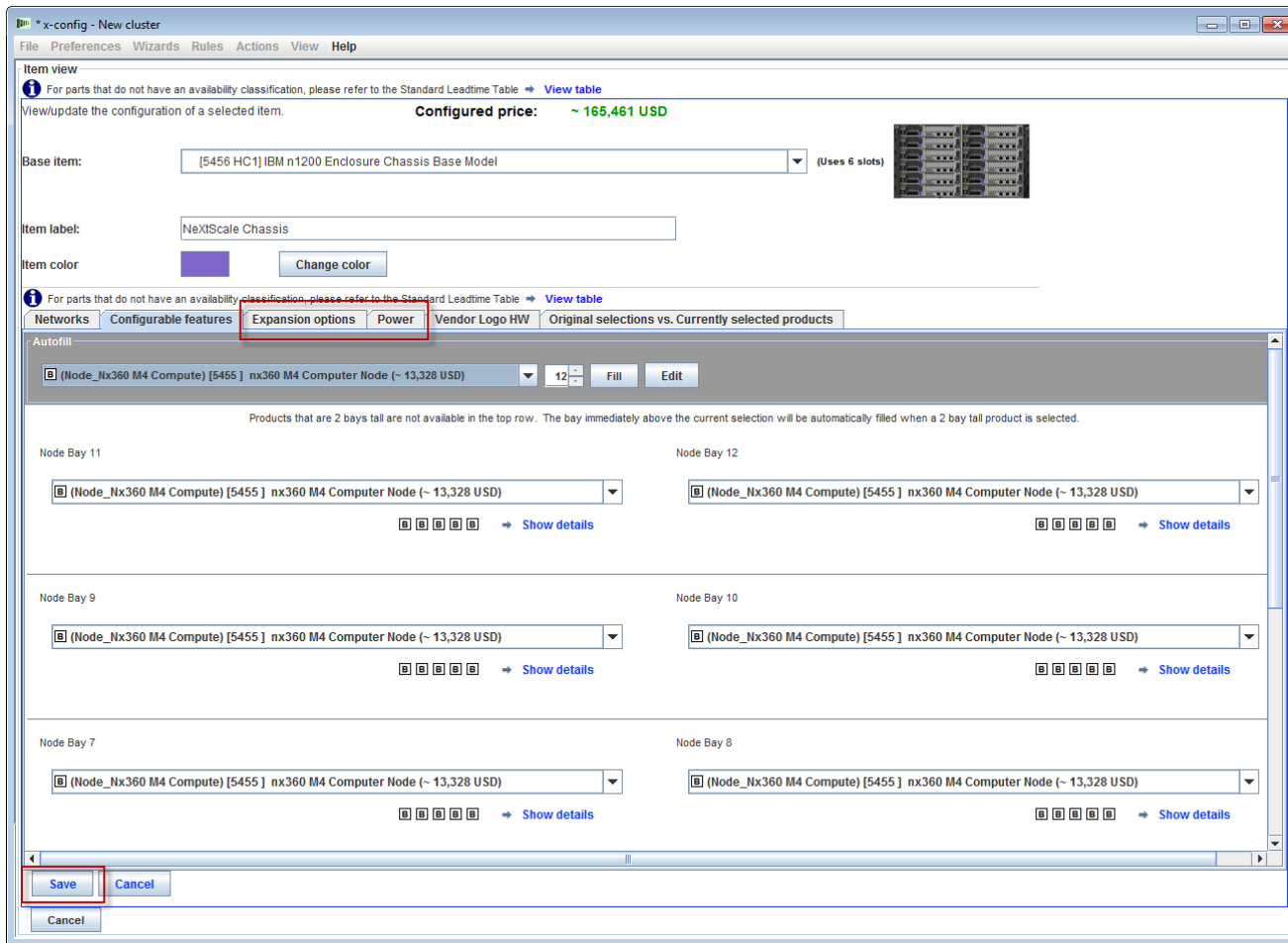
NeXtScale & x-config - Building Block 1 chassis configuration

After configuring the node add as many as is required for the customer solution. In this example I added 12 to fill the chassis.



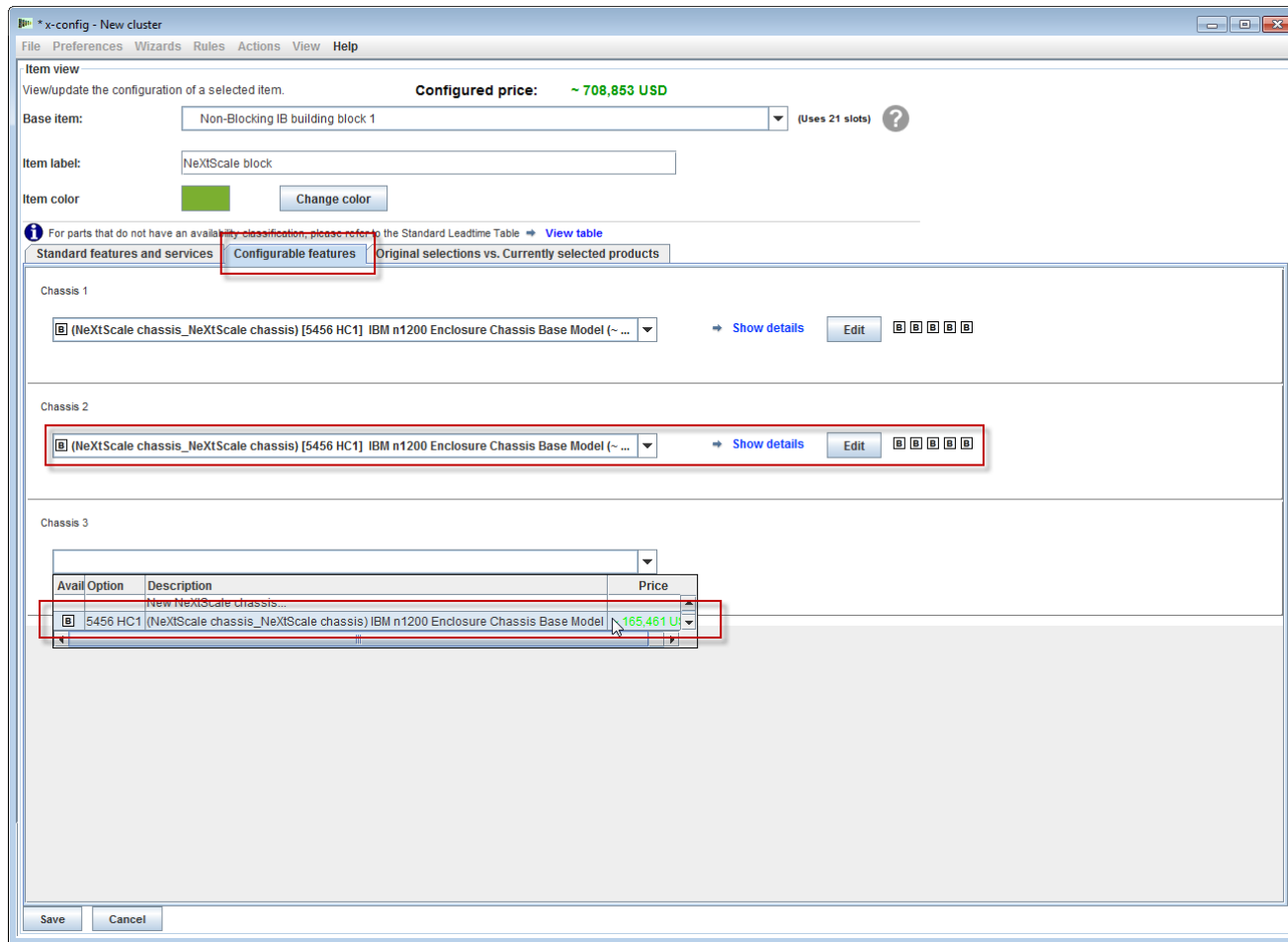
NeXtScale & x-config - Building Block 1 chassis configuration

Next is to finish customizing the chassis for the customer solution requirements, moving to the 'Expansion options', 'Power' and 'Vendor Logo HW' tabs. Lastly, select 'Save'.



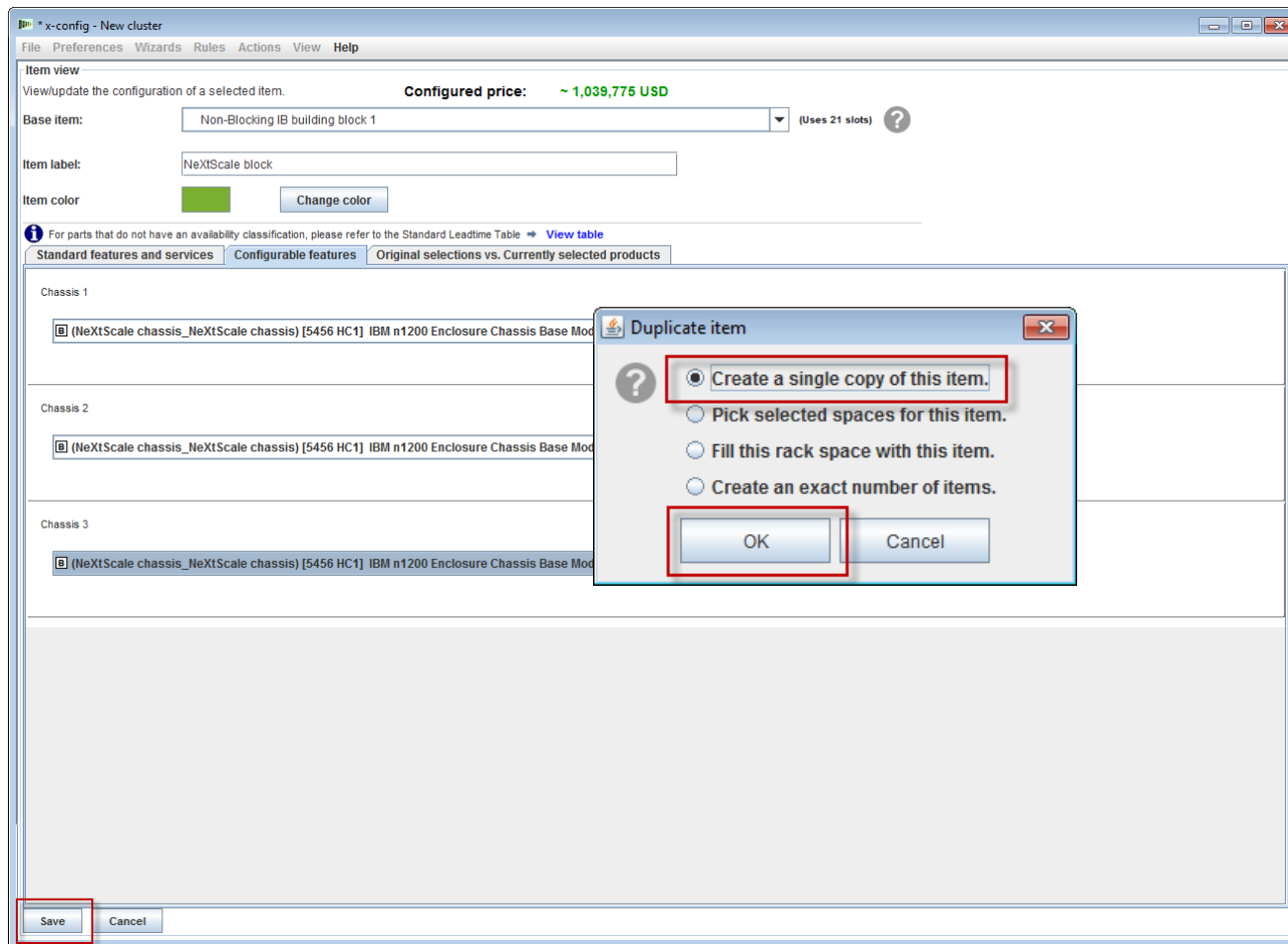
NeXtScale & x-config - Building Block 1 configuration

Next is to add 'Chassis 2' and 'Chassis 3', using the drop-down tab. Select the NeXtScale chassis that was configured as 'Chassis 1'. Lastly, select 'Save'.



NeXtScale & x-config - Building Block 1 configuration

After selecting 'Save' from the previous screen, you will get a pop-up window to Duplicate the item. For this type of configuration I am selecting 'Create a single copy of this item'. Then select 'OK'.



NeXtScale & x-config - New cluster configuration

Here is a view of the cluster main configuration window after creating Building Block 1. Next is to add Building Block 2, see next slide.

The screenshot displays the 'x-config - New cluster' application window. The title bar indicates the solution is 'Intelligent Cluster, General Purpose' with a total list price of 564,914 USD and the country set to 'United States'. The interface includes a menu bar (File, Preferences, Wizards, Rules, Actions, View, Help) and a toolbar with 'Save', 'Export', 'Undo', and 'Redo' buttons. A status bar shows 'Configuration Availability: - Extended lead time / limited availability'.

The main workspace is divided into several panels:

- About the configuration:** A warning icon indicates 'This configuration is not FastPath compliant.' with a 'Show details' link.
- Integrated products:** A tabbed interface with 'Racks', 'Items', and 'Non-racked items' tabs. It prompts the user to 'Select a rack to view details in the diagram to the right. Right-click any rack or item to see available actions.' and includes an 'Add new rack' button. A list shows 'Rack_NeXtScale rack 1' with a quantity of 1.
- Rack view/update:** A central diagram showing a rack layout with a list of items on the right. The list includes:
 - 42, 41, 40, 39, 38, 37, 36, 35, 34, 33, 32, 31, 30, 29, 28, 27, 26, 25, 24, 23, 22
 - Highspeed_2185
 - 20 NeXtScale chassis_Ne
 - Node_Nx560 MA...
 - Node_Nx560 MA...
 - Node_Nx560 MA...
 - Node_Nx560 MA...
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 - 19 NeXtScale chassis_Ne
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 - 18 NeXtScale chassis_Ne
 - Node_Nx560 MA...
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 - 17 NeXtScale chassis_Ne
 - Node_Nx560 MA...
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 - 16 NeXtScale chassis_Ne
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 - 13 NeXtScale chassis_Ne
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 - 12 NeXtScale chassis_Ne
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 - 10 NeXtScale chassis_Ne
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 - Node_Nx560 MA...
 - 9 NeXtScale chassis_Ne
 - Node_Nx560 MA...
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 - 8 NeXtScale chassis_Ne
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 - 7 NeXtScale chassis_Ne
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 - 6 NeXtScale chassis_Ne
 - Node_Nx560 MA...
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 - 5 NeXtScale chassis_Ne
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 - 4 NeXtScale chassis_Ne
 - Node_Nx560 MA...
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 - Node_Nx560 MA...
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 - 3 NeXtScale chassis_Ne
 - Node_Nx560 MA...
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 - Node_Nx560 MA...
 - Node_Nx560 MA...
 - Node_Nx560 MA...
 - Node_Nx560 MA...
 - Node_Nx560 MA...
 - Node_Nx560 MA...
 - 2 Highspeed_2185
 - 1 Ethernet_2185
- Item view:** A panel on the right with the instruction 'Place mouse cursor over an item to view details or right-click an item and select "inspect"'. Below this is a 'Messages' section with tabs for 'Summary' and 'History'. The messages list:
 - Highspeed_2185: For 0724HCG the current availability is "D: Extended lead times and/or limited
 - Configuration includes items with unclassified availability [More info](#)
 - Rack power updated [More info](#)
 - Cabling updated [More info](#)
 - All racks passed Center of Gravity tests [More info](#)
- Floor and cabling:** A section at the bottom left showing 'Floor and cabling' with a '1' and 'A' indicator, and buttons for 'Modify floor' and 'View cabling'.

NeXtScale & x-config - New cluster configuration

Next find an open position in the rack, then right-click to add 'NeXtScale block'. Choose 'New NeXtScale block...'

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- Top Bar:** Shows 'Solution: Intelligent Cluster, General Purpose', 'Total List Price: 564,914 USD', and 'Country: United States'. It also has buttons for 'Save', 'Export', 'Undo', and 'Redo', and a status for 'Configuration Availability: - Extended lead time / limited availability'.
- About the configuration:** A warning icon and text: 'This configuration is not FastPath compliant.' with a 'Show details' link.
- Integrated products:** A section with tabs for 'Racks', 'Items', and 'Non-racked items'. It contains instructions: 'Select a rack to view details in the diagram. Right-click any rack or item to see available actions.' and an 'Add new rack' button. Below this, 'Rack_NeXtScale rack 1' is listed with a quantity of 1.
- Rack view/update:** A diagram of a rack with slots numbered 1 to 42. A context menu is open over slot 29, listing options like 'Blade', 'BladeCenter', 'Chassis', 'DDN Enclosure', 'DDN Singlet', 'Flex System chassis', 'Flex System node', 'Keyboard/Monitor', 'Management Appliance', 'NeXtScale block', 'NeXtScale chassis', 'NeXtScale node', 'Planar', 'SAN', 'Server', 'Storage', 'Storage Expansion', 'Tape enclosure', 'UPS', and 'Reserve'. The 'NeXtScale block' option is highlighted, and a sub-menu is open showing 'New NeXtScale block...' as the selected option.
- Item view:** A section titled 'Place mouse cursor over an item to view details or right-click an item and select "inspect"'. It displays a list of items and their details, including a warning for 'addNeXtScale_Cable: Active rule applied on (Clone) [1410 HPB, A2M8] Intelligent Cluster 42U 11' and other configuration notes like 'Configuration includes items with unclassified availability', 'Rack power updated', 'Cabling updated', and 'All racks passed Center of Gravity tests'.
- Floor and cabling:** A section at the bottom left with a 'Modify floor' and 'View cabling' button.

NeXtScale & x-config - Building Block 2 configuration

Next I selected 'Non-Blocking IB building block 2' from the 'Base Item' drop-down. Make sure to add a meaningful 'Item label'. On the 'Standard features and services' tab, make sure to add the same switch as in Building Block 1. Here I selected 'Mellanox SX6036 FDR14 IB' switch.

The screenshot shows the 'x-config - New cluster' window. The 'Item view' section displays the configuration for a selected item. The 'Base item' is set to 'Non-Blocking IB building block 2' (highlighted with a red box), with a 'Configured price' of ~47,858 USD and '(Uses 21 slots)'. The 'Item label' is 'NeXtScale block 2' (highlighted with a red box). The 'Item color' is a brown square, with a 'Change color' button. Below this, there is a message: 'For parts that do not have an availability classification, please refer to the Standard Leadtime Table → View table'. The 'Standard features and services' tab (highlighted with a red box) is active, showing a 'Network switch preference' (req. 2) dropdown set to 'Mellanox SX6036 FDR14 IB' (highlighted with a red box) and a quantity of 2. A 'Show details' link is visible next to the dropdown. At the bottom, there are 'Save' and 'Cancel' buttons.

NeXtScale & x-config - Building Block 2 configuration

Next I selected the 'Configurable features' tab. Then under 'Chassis 1' drop-down I selected the NeXtScale Chassis configured under Building Block 1. Using this method will make all my chassis's and nodes exactly the same. Actual customer solutions will vary based off of requirements.

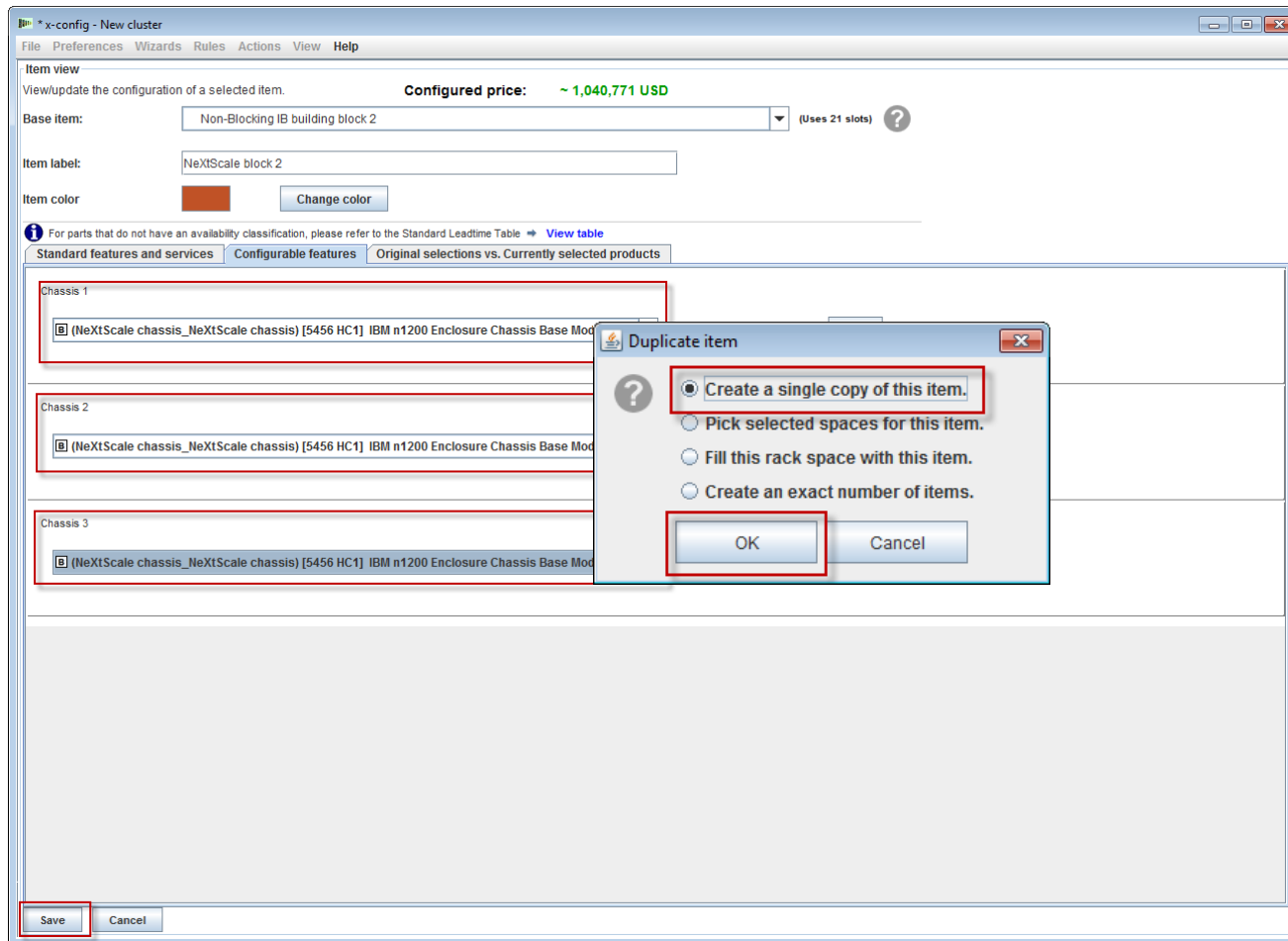
The screenshot shows the 'x-config - New cluster' window. The 'Configurable features' tab is active. The 'Base item' is 'Non-Blocking IB building block 2' and the 'Configured price' is '~47,858 USD'. The 'Item label' is 'NeXtScale block 2'. The 'Chassis 1' dropdown is set to 'New NeXtScale chassis'. A table lists available options for Chassis 1:

Avail Option	Description	Price
[x]	5456 HC1 (NeXtScale chassis_NeXtScale chassis) IBM n1200 Enclosure Chassis Base Model	~166,001 USD

The 'Configurable features' tab and the selected row in the table are highlighted with red boxes. The 'Chassis 1' dropdown is also highlighted. The 'Save' and 'Cancel' buttons are visible at the bottom.

NeXtScale & x-config - Building Block 2 configuration

After selecting 'Save' from the previous screen, you will get a pop-up window to Duplicate the item. For this type of configuration I am selecting 'Create a single copy of this item'. Then select 'OK'.



NeXtScale & x-config - New cluster configuration

Here is a view of the cluster main configuration window after creating Building Block 2. Next is to connect the two building blocks together so they work as a cluster.

The screenshot displays the 'x-config - New cluster' application window. At the top, it shows the solution name 'Intelligent Cluster, General Purpose', a total list price of 1,119,479 USD, and the country 'United States'. The interface is divided into several functional areas:

- About the configuration:** A warning icon indicates 'This configuration is not FastPath compliant.' Below this are 'Integrated products' tabs for 'Racks', 'Items', and 'Non-racked items'. A 'Rack view/update' section shows a diagram of a rack with 42 slots, each containing a component like 'Highspeed_2185' or 'NeXtScale chassis_Ne'. A 'Floor and cabling' section is also visible.
- Item view:** This panel shows details for 'NeXtScale Block_NeXtScale block 2' with a price of ~1,044,005 USD. It lists 'Installed options (~ 42757 USD)' including Mellanox switches and InfiniBand switches, 'Services (~ 300 USD)' for rack installation, and 'Auto adds (~ 117 USD)' for rack mount kits and seal kits. The total in rack is 1, and the total in cluster is also 1.
- Messages:** A warning message states: 'Highspeed_2185: For 0724HCG the current availability is "D": Extended lead times and/or limited d'. Below this are informational messages about configuration updates and rack power updates.

NeXtScale & x-config - New cluster configuration

Next I want to connect the two building blocks together using 'Cluster preferences' under 'Preferences' from the main menu. You could have selected 'F12' to launch Cluster preferences too.

The screenshot shows the x-config software interface for configuring a new cluster. The main window displays a rack layout diagram with various components. The 'Preferences' menu is open, highlighting 'Cluster preferences'. The right pane shows details for a selected 'DPI Single-phase 60A/208V C13 Enterprise PDU Plus (US)' item, including its base list price and installed options. The bottom pane shows a messages log with system alerts and information.

Menu: File, Preferences, Wizards, Rules, Actions, View, Help

Cluster preferences: Floor preferences, Cabling preferences, VLH Item preferences, Storage preferences

Item view: DPI Single-phase 60A/208V C13 Enterprise PDU Plus (US) (~ 1,299 USD)

Base list price: (~ 1299 USD)

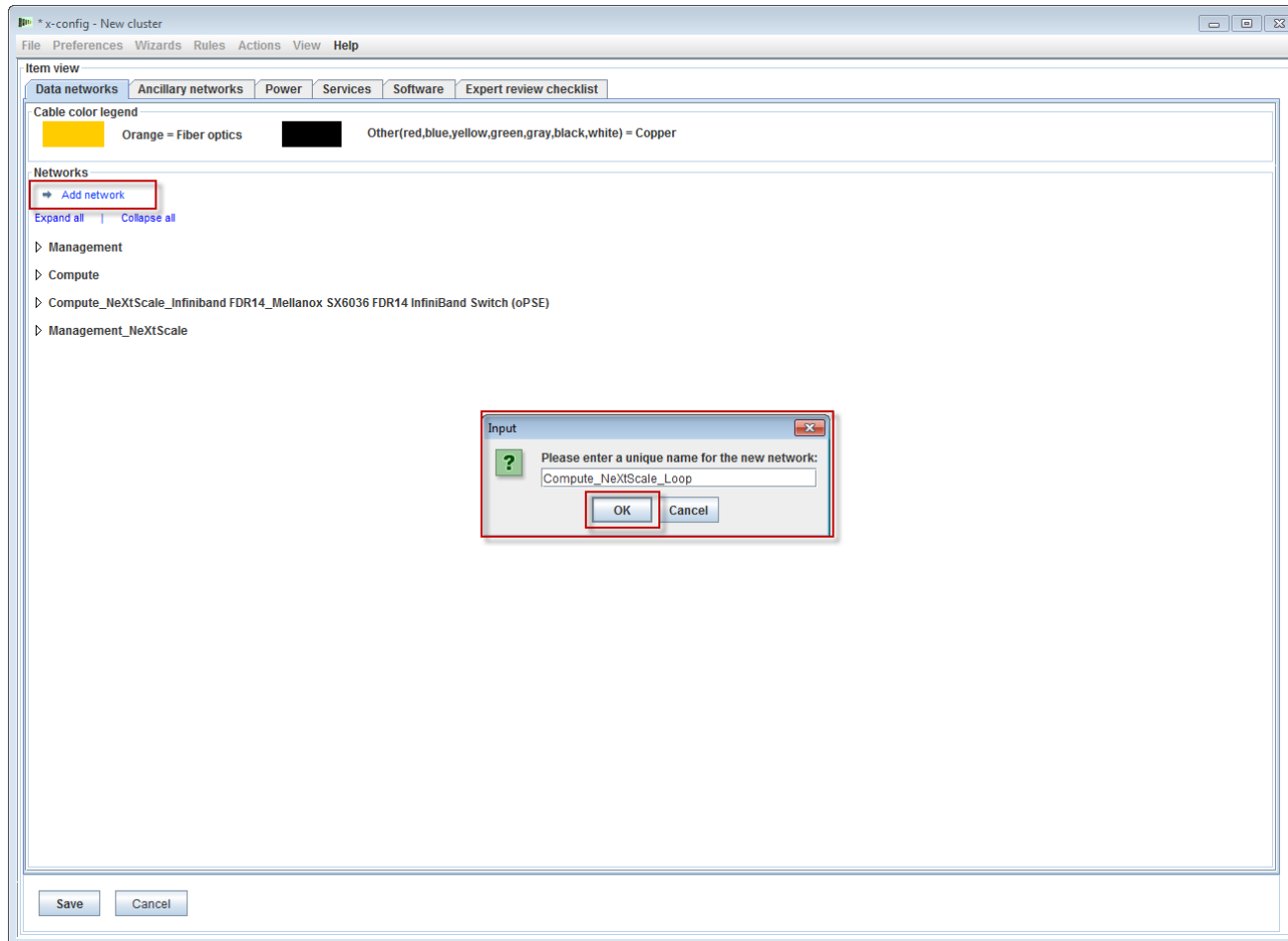
Installed options: (~ 0 USD)

Environmental: Power and cooling data provided by x-config is based on nameplate data supplied by IBM de
 Current (@200V) = 48.00 A
 Max power load = 9600.00 W
 Total weight = 6.60 kg
 Total BTU = 0.00 btu/hr
 Height/width/depth= 447.0 / 43.9 / 350.0
 Center of gravity height/width/depth= 223.5 / 22.0 / 175.0

Messages: Highspeed_2185: For 0724HCG the current availability is "D: Extended lead times and/or limited a
 Configuration includes items with unclassified availability [More info](#)
 Rack power updated [More info](#)
 Cabling updated [More info](#)
 All racks passed Center of Gravity tests [More info](#)

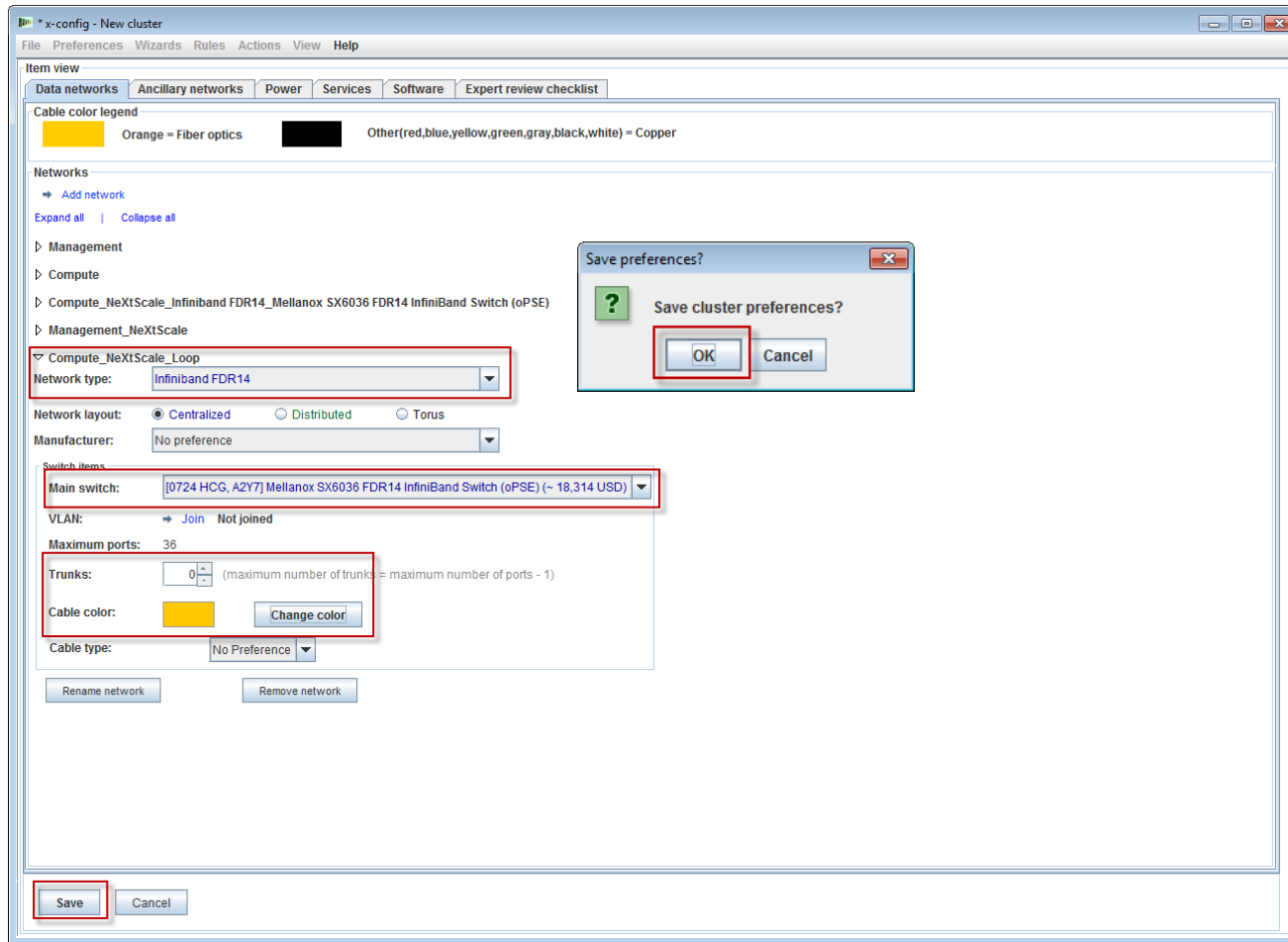
NeXtScale & x-config - New cluster configuration

On the 'Data networks' tab I will create a new network to connect the two building blocks. Choose 'Add network'. Next name the new network, here I called it 'Compute_NeXtScale_Loop'. Lastly, select 'OK'.



NeXtScale & x-config - New network configuration

Next is to configure the new network from the 'Data networks' tab. Select the new network 'Compute_NeXtScale_Loop' expansion drop-down. Make sure to match the 'Network type' with the existing IB networks. In this example it is 'Infiniband FDR14'. Next select the 'Main switch' to match the existing IB network switch, here is it FC '0724 HCG'. Next set 'Trunks' to 0 and change the 'Cable color' to orange. Lastly, select 'Save'.



NeXtScale & x-config - New network configuration

Next I will add the new network to the existing highspeed network. Right-click on an existing 'Highspeed_2185' switch in the rack and then select 'Edit contained items' and then select 'Highspeed_2185....' switch.

The screenshot displays the x-config software interface for configuring a new cluster. The main window is titled "x-config - New cluster" and shows a rack configuration for "Rack_NeXtScale rack 1".

Configuration Summary:

- Total List Price:** 1,119,479 USD
- Country:** United States
- Configuration Availability:** Extended lead time / limited availability

Item view details for 'Highspeed_2185 (~ 20,325 USD)':

- Base list price (~ 18229 USD)**
- Installed options (~ 1647 USD):**
 - 1x Included PowerSupply
 - 2x A [6311] 2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable (~ 9 USD)
 - 1x [A2F3] Mellanox MSX60xx/MSX10xx 300w Power Supply with Exhaust Fan (~ 1629 USD)
- Services (~ 75 USD):**
 - [2305] Rack Installation of 1U Component (~ 75 USD)
- Auto adds (~ 374 USD):**
 - 1x [A4WX] Switch Seal Kit (~ 49 USD)
 - 1x [A4HK] Mellanox SX60xx/10xx 75mm Recessed Enterprise Rack Mount Kit (~ 325 USD)
- Network connections:**
 - InfiniBand FDR14: Total Ports=36
- Total in rack:** 4
- Total in cluster:** 4

Context Menu for 'Highspeed_2185':

- Copy
- Cut
- Edit contained items** (Selected)
- Show details
- Edit
- Duplicate
- Remove

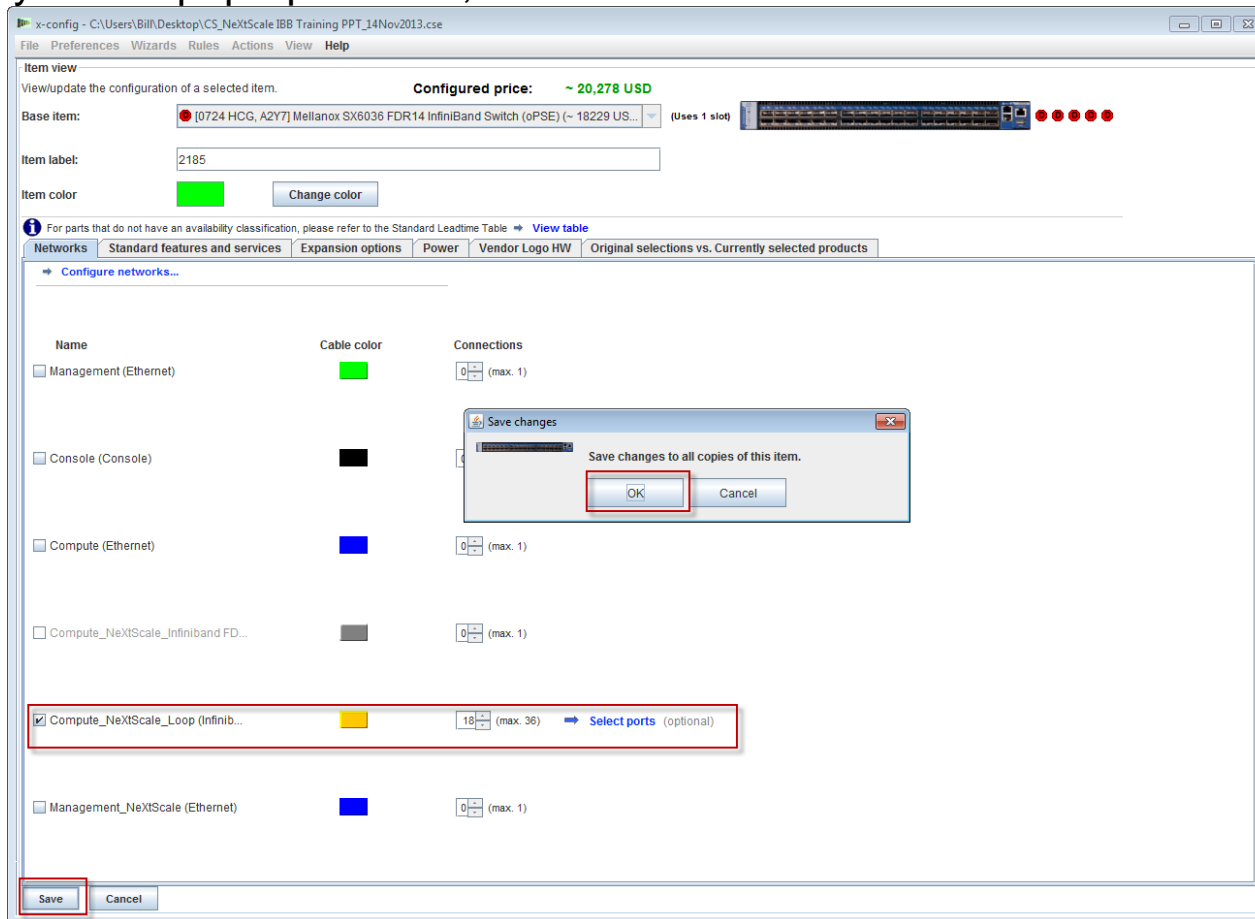
Item view details for 'Highspeed_2185 [0724 HCG, A2Y7] Mellanox SX6036 FDR14 InfiniBand Switch (oPSE) (~ 20,327 USD)':

- (Highspeed_2185) [0724 HCG, A2Y7] Mellanox SX6036 FDR14 InfiniBand Switch (oPSE) (~ 20,327 USD)
- (NeXtScale chassis_NeXtScale chassis) [5456 HC11 IBM n1200 Enclosure Chassis Base Model (~ 166,001 USD)
- (NeXtScale chassis_NeXtScale chassis) [5456 HC11 IBM n1200 Enclosure Chassis Base Model (~ 166,001 USD)
- (NeXtScale chassis_NeXtScale chassis) [5456 HC1] IBM n1200 Enclosure Chassis Base Model (~ 166,001 USD)
- (Highspeed_2185) [0724 HCG, A2Y7] Mellanox SX6036 FDR14 InfiniBand Switch (oPSE) (~ 20,327 USD)

Information: All racks passed Center of Gravity tests [More info](#)

NeXtScale & x-config - New network configuration

From the configuration window for the 0724 HCG switch, select the 'Networks' tab. Check/Select the new network 'Compute_NeXtScale_Loop'. Set the 'Connections' to 18, half the amount of actual node ports. In this training example I have 36 nodes in each building block. Next select 'Save'. Lastly on the pop-up window, select 'OK'.



NeXtScale & x-config - New cluster configuration

Here is a view of the 'Rack_AUTO_85', the rack that contains the highspeed switches added by configuring the new network. Two highspeed switches were added to connect the two building blocks and form the Cluster. At this point, ignore the red warning messages in the 'Messages' window. This should be fixed at a later time.

The screenshot shows the x-config software interface for a new cluster configuration. The main window displays a rack layout with two racks, Rack_AUTO_85 and Rack_NeXtScale rack 1. The Rack_AUTO_85 rack is highlighted, and its details are shown in the 'Item view' panel on the right. The 'Messages' panel at the bottom shows several warning messages, including 'Rack_NeXtScale rack 1: Non-Blocking IB built... cannot be installed in the' and 'Rack_AUTO_85: For 4937 the current availability is 'C: Ships in 15 business days'.

Item view details for Highspeed_Compute_NeXtScale_Loop Main (~ 18229 USD):

- Item: [0724 HCG, A2Y7] Mellanox SX6036 FDR14 InfiniBand Switch (oPSE)
- Slot: 8
- Availability: D - Extended lead time / limited availability
- Base list price (~ 18229 USD)
- Installed options (~ 10 USD):
 - 1x Included PowerSupply
 - 1x A [6311] 2.8m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable
- Services (~ 75 USD):
 - [2305] Rack Installation of 1U Component (~ 75 USD)
- Network connections: Infiniband FDR14: Total Ports=36

Messages:

- Rack_NeXtScale rack 1: Non-Blocking IB built... cannot be installed in the
- Rack_NeXtScale rack 1: Non-Blocking IB built... cannot be installed in the
- Rack_AUTO_85: For 4937 the current availability is "C: Ships in 15 business days"
- Rack_AUTO_85: For 4936 the current availability is "C: Ships in 15 business days"
- Rack_NeXtScale rack 1: For 1410HPB the current availability is "C: Ships in 15 business days"
- Highspeed_Compute_NeXtScale_Loop Main: For 0724HCG the current availability is "D: Extended lead time"
- Highspeed_Compute_NeXtScale_Loop Main: Local IBM Sales & Fulfillment are responsible for obtaining the item
- Highspeed_2185: For 0724HCG the current availability is "D: Extended lead time"
- Highspeed_2185: Local IBM Sales & Fulfillment are responsible for obtaining the item
- NeXtScale chassis_NeXtScale chassis: When building a NeXtScale chassis, the chassis must be built with the following configuration:
 - Configuration includes items with unclassified availability [More info](#)
- Rack power updated [More info](#)
- Cabling updated [More info](#)
- All racks passed Center of Gravity tests [More info](#)

NeXtScale & x-config - New cluster configuration

Next I will check the cabling to ensure that my network and power connections are setup properly. Choose 'View/Edit cabling' from the main configuration screen, bottom left. On the Cable configuration screen, select only the Highspeed switch and click 'Show connections'. I can see here that I have 36 connections to my 'Highspeed_Compute_NeXtScale_Loop' main switches for each Building Block.

The screenshot shows the 'Cable configuration' window. The 'Component filters' section includes a 'Rack diagram' with two racks labeled 1 and 2, and components A and B. Below the diagram are instructions: 'Click on the rack diagram to the left to view the component connections for a specific rack. To view and / or modify connection details: 1. Select one or more "From" components (below, left) - expand components to see occupied slot(s) 2. Select one or more "To" components (below, right) 3. Click the "Show connections" button to display the results'. The 'Rack A1 components (From)' list is expanded, showing three items: '43: (Ethernet_2185) [4668 HCC, A2ZW] LG-E ES-4052G 1GbE Switch (oPSE) (~ 7,302 USD)', '44: (Highspeed_2185) [0724 HCG, A2Y7] Mellanox SX6036 FDR14 InfiniBand Switch (oPSE) (~ 20,278 USD)', and '6: (NeXtScale chassis_NeXtScale chassis) [5456 HC1] IBM n1200 Enclosure Chassis Base Model (~ 149,666 USD)'. The 'Components connected to Rack A1 components (To)' list is also expanded, showing 'Rack A1 (Rack_NeXtScale rack 1) [1410 HPB, A2M8] Intelligent Cluster 42U 1100mm Enterprise V2 Dynamic Rack (~ 1,907,879 USD)' and 'Rack A2 (Rack_AUTO_85) [7825 RC1, 2728] IDPX 100U Rack Cabinet (~ 53,059 USD)'. A 'Show connections' button is highlighted with a red box. Below this is the 'Connection results' section, which includes a table with columns: Network name, Location, Port, Component, and Cable. The table contains 12 rows of connection data, all of which are highlighted with a red box.

Network name	Location	Port	Component	Cable
Compute_NeXtScale FDR14_Mellanox	From: A1/U40B To: A1/U41	HCA1/IB1 P18	(Node_Nx360 M4 Compute) [5455] nx360 M4 Computer Node (~ 12,073 USD) (Highspeed_2185) [0724 HCG, A2Y7] Mellanox SX6036 FDR14 InfiniBand Switch (oPSE) (~ 20,278 USD)	[A2YG] 1m Mellanox QSF
Compute_NeXtScale FDR14_Mellanox	From: A1/U40A To: A1/U41	HCA1/IB1 P17	(Node_Nx360 M4 Compute) [5455] nx360 M4 Computer Node (~ 12,073 USD) (Highspeed_2185) [0724 HCG, A2Y7] Mellanox SX6036 FDR14 InfiniBand Switch (oPSE) (~ 20,278 USD)	[A4HS] 0.75m Mellanox Q
Compute_NeXtScale FDR14_Mellanox	From: A1/U39B To: A1/U41	HCA1/IB1 P16	(Node_Nx360 M4 Compute) [5455] nx360 M4 Computer Node (~ 12,073 USD) (Highspeed_2185) [0724 HCG, A2Y7] Mellanox SX6036 FDR14 InfiniBand Switch (oPSE) (~ 20,278 USD)	[A2YG] 1m Mellanox QSF
Compute_NeXtScale FDR14_Mellanox	From: A1/U39A To: A1/U41	HCA1/IB1 P15	(Node_Nx360 M4 Compute) [5455] nx360 M4 Computer Node (~ 12,073 USD) (Highspeed_2185) [0724 HCG, A2Y7] Mellanox SX6036 FDR14 InfiniBand Switch (oPSE) (~ 20,278 USD)	[A4HS] 0.75m Mellanox Q
Compute_NeXtScale FDR14_Mellanox	From: A1/U38B To: A1/U41	HCA1/IB1 P14	(Node_Nx360 M4 Compute) [5455] nx360 M4 Computer Node (~ 12,073 USD) (Highspeed_2185) [0724 HCG, A2Y7] Mellanox SX6036 FDR14 InfiniBand Switch (oPSE) (~ 20,278 USD)	[A2YG] 1m Mellanox QSF
Compute_NeXtScale FDR14_Mellanox	From: A1/U38A To: A1/U41	HCA1/IB1 P13	(Node_Nx360 M4 Compute) [5455] nx360 M4 Computer Node (~ 12,073 USD) (Highspeed_2185) [0724 HCG, A2Y7] Mellanox SX6036 FDR14 InfiniBand Switch (oPSE) (~ 20,278 USD)	[A4HS] 0.75m Mellanox Q
Compute_NeXtScale FDR14_Mellanox	From: A1/U37B To: A1/U41	HCA1/IB1 P12	(Node_Nx360 M4 Compute) [5455] nx360 M4 Computer Node (~ 12,073 USD) (Highspeed_2185) [0724 HCG, A2Y7] Mellanox SX6036 FDR14 InfiniBand Switch (oPSE) (~ 20,278 USD)	[A2YG] 1m Mellanox QSF
Compute_NeXtScale	From: A1/U37A	HCA1/IB1	(Node_Nx360 M4 Compute) [5455] nx360 M4 Computer Node (~ 12,073 USD)	[A4HS] 0.75m Mellanox Q

NeXtScale & x-config - New cluster configuration

Here is the finished view of the Cluster after creating Building Block 1 & 2 and after creating the New Network. You can see there are now two racks in the solution. 'Rack_NeXtScale rack 1' contains the compute nodes and main switching. 'Rack_AUTO_85' contains the added highspeed switches. Next is to 'Save' and 'Export' the solution.

The screenshot displays the x-config software interface for a new cluster configuration. The main window shows a solution named 'Intelligent Cluster, General Purpose' with a total list price of 1,131,780 USD. The interface is divided into several panels:

- Toolbar:** Contains 'Save' and 'Export' buttons, which are highlighted with a red box.
- About the configuration:** Shows a warning icon and the text 'This configuration is not FastPath compliant.' with a 'Show details' link.
- Integrated products:** Includes tabs for 'Racks', 'Items', and 'Non-racked items'. Under 'Racks', two racks are listed: 'Rack_AUTO_85' and 'Rack_NeXtScale rack 1', both with a quantity of 1. A red box highlights the 'Add new rack' button and the list of racks.
- Rack view/update:** Shows the selected rack, 'Rack_NeXtScale rack 1', with options to 'Update the rack', 'Modify quantity', 'Auto allocate', 'Change options', and 'Remove with its contents'. Below this is a diagram of the rack layout and a list of components including Ethernet_2185, Highspeed_2185, and multiple NeXtScale chassis and nodes.
- Item view:** Provides details for 'Rack_NeXtScale rack 1', including its list price (~4999 USD), installed options (~5345 USD), and rackmount items (EIA).
- Messages:** Displays a list of messages, including two error messages for 'Rack_NeXtScale rack 1: Non-Blocking IB' and several warning messages for 'Rack_AUTO_85' and 'Rack_NeXtScale rack 1'.

NeXtScale & x-config - Cluster configuration Export

After saving my solution using the 'Save' selection, I now select 'Export'. Depending on your country of configuration you will have different selections on the 'Format selection' pop-up window. For the US I have 'TMF/SEO - CFReport/Excel format'. Make sure to check/select the 'TMF/SEO..' checkbox. The 'Validate with SOVA...' checkbox is pre-selected and should remain checked. It is important to run your solution through SOVA to validate it can be built by manufacturing. Choose 'Continue'.

The screenshot displays the x-config application interface. The main window title is "x-config - C:\Users\Bill\Desktop\CS_NeXtScale IBB Training PPT_14Nov2013.cse". The menu bar includes "File", "Preferences", "Wizards", "Rules", "Actions", "View", and "Help". The status bar shows "Solution: Intelligent Cluster, General Purpose", "Total List Price: 1,222,905 USD", and "Country: United States".

In the main window, the "Export" button is highlighted with a red box. A dialog box titled "Export cluster wizard - Format selection" is open, showing the "Format selection" step. The dialog contains the following text:

You can select the export format.
You may also perform SOVA validations for this configuration.

The following options are checked and highlighted with a red box:

- TMF/SEO - CFReport/Excel format
- Validate with SOVA (Single Order Validation Application)

The "Continue" button at the bottom right of the dialog is also highlighted with a red box. The background shows a rack configuration diagram with "Rackmount items" and a list of items including "Highspeed_2185" and "Ethernet_2185".

NeXtScale & x-config - Cluster configuration Export

In the 'Filename entry' pop-up window, provide a file name. If you performed the save configuration prior to exporting, then the export file name will match the save file name. The 'CS' in the file name is there to show it's a Custom Solution and not a Fastpath Solution. Next, select 'Continue'.

The screenshot displays the x-config application window. The main interface shows a configuration for an Intelligent Cluster, General Purpose, with a total list price of 1,222,905 USD and a country of United States. A pop-up window titled 'Export cluster wizard - Filename entry' is open, showing a 'Filename entry' dialog. The dialog contains the text: 'Please enter a base filename for all exports (e.g. filename 'cluster' would create the file 'TMF_SEQ_cluster.cfr' for the TMF/SEO for CFR format)'. The text field contains 'CS_NeXtScale IBB Training PPT_14Nov2013'. The 'Continue' button is highlighted with a red box. The background interface includes sections for 'About the configuration', 'Integrated products', 'Racks and cabling', and a list of items with their quantities and prices.

NeXtScale & x-config - Cluster configuration Export

Next is the 'CFReport file options' selection. Here I chose 'Minimize the number of CFReports'. Depending on the size and complexity of the solution, you may need to 'Create a separate CFReport for each rack'. Next, select 'Continue'.

The screenshot displays the 'x-config' application window. The main window title is 'x-config - C:\Users\Bill\Desktop\CS_NeXtScale IBB Training PPT_14Nov2013.cse'. The menu bar includes 'File', 'Preferences', 'Wizards', 'Rules', 'Actions', 'View', and 'Help'. The status bar shows 'Solution: Intelligent Cluster, General Purpose' and 'Country: United States'. The main content area is divided into several sections: 'About the configuration' (warning: 'This configuration is not FastPath compatible'), 'Integrated products' (with tabs for 'Racks', 'Items', and 'Non-racked items'), and 'Floor and cabling'. A central dialog box titled 'Export cluster wizard - CFReport file options' is open, showing the 'CFReport file options' step. The dialog has a sidebar with 'Format selection', 'Directory selection', 'Filename entry', 'CFReport file options', and 'Review selections'. The 'CFReport file options' section is active, showing two radio buttons: 'Minimize the number of CFReports' (selected) and 'Create a separate CFReport for each rack'. The background shows a rack configuration view with a table of nodes and a status panel on the right.

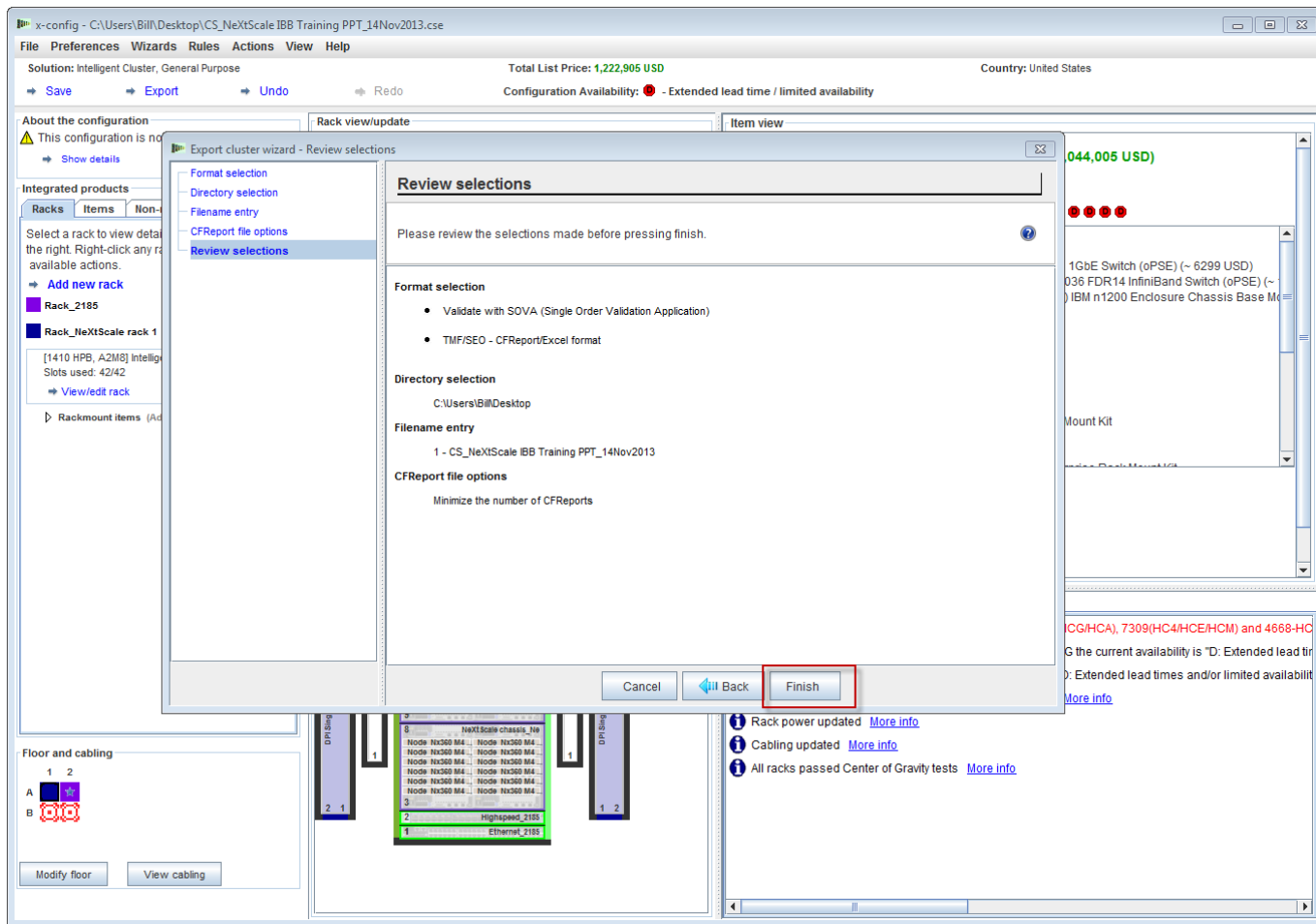
Node ID	Node Name	Node Type
1	Node NeX300 M4...	Node NeX300 M4...
2	Node NeX300 M4...	Node NeX300 M4...
3	Node NeX300 M4...	Node NeX300 M4...
4	Node NeX300 M4...	Node NeX300 M4...
5	Node NeX300 M4...	Node NeX300 M4...
6	Node NeX300 M4...	Node NeX300 M4...
7	Node NeX300 M4...	Node NeX300 M4...
8	Node NeX300 M4...	Node NeX300 M4...
9	Node NeX300 M4...	Node NeX300 M4...
10	Node NeX300 M4...	Node NeX300 M4...
11	Node NeX300 M4...	Node NeX300 M4...
12	Node NeX300 M4...	Node NeX300 M4...
13	Node NeX300 M4...	Node NeX300 M4...
14	Node NeX300 M4...	Node NeX300 M4...
15	Node NeX300 M4...	Node NeX300 M4...
16	Node NeX300 M4...	Node NeX300 M4...
17	Node NeX300 M4...	Node NeX300 M4...
18	Node NeX300 M4...	Node NeX300 M4...
19	Node NeX300 M4...	Node NeX300 M4...
20	Node NeX300 M4...	Node NeX300 M4...
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27	Node NeX300 M4...	Node NeX300 M4...
28	Node NeX300 M4...	Node NeX300 M4...
29	Node NeX300 M4...	Node NeX300 M4...
30	Node NeX300 M4...	Node NeX300 M4...
31	Node NeX300 M4...	Node NeX300 M4...
32	Node NeX300 M4...	Node NeX300 M4...
33	Node NeX300 M4...	Node NeX300 M4...
34	Node NeX300 M4...	Node NeX300 M4...
35	Node NeX300 M4...	Node NeX300 M4...
36	Node NeX300 M4...	Node NeX300 M4...
37	Node NeX300 M4...	Node NeX300 M4...
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41	Node NeX300 M4...	Node NeX300 M4...
42	Node NeX300 M4...	Node NeX300 M4...
43	Node NeX300 M4...	Node NeX300 M4...
44	Node NeX300 M4...	Node NeX300 M4...
45	Node NeX300 M4...	Node NeX300 M4...
46	Node NeX300 M4...	Node NeX300 M4...
47	Node NeX300 M4...	Node NeX300 M4...
48	Node NeX300 M4...	Node NeX300 M4...
49	Node NeX300 M4...	Node NeX300 M4...
50	Node NeX300 M4...	Node NeX300 M4...
51	Node NeX300 M4...	Node NeX300 M4...
52	Node NeX300 M4...	Node NeX300 M4...
53	Node NeX300 M4...	Node NeX300 M4...
54	Node NeX300 M4...	Node NeX300 M4...
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57	Node NeX300 M4...	Node NeX300 M4...
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92	Node NeX300 M4...	Node NeX300 M4...
93	Node NeX300 M4...	Node NeX300 M4...
94	Node NeX300 M4...	Node NeX300 M4...
95	Node NeX300 M4...	Node NeX300 M4...
96	Node NeX300 M4...	Node NeX300 M4...
97	Node NeX300 M4...	Node NeX300 M4...
98	Node NeX300 M4...	Node NeX300 M4...
99	Node NeX300 M4...	Node NeX300 M4...
100	Node NeX300 M4...	Node NeX300 M4...

The status panel on the right shows the following information:

- Highspeed_2185: For 0724HCG the current availability is 'D: Extended lead times and/or limited availability'
- Configuration includes items with unclassified availability [More info](#)
- Rack power updated [More info](#)
- Cabling updated [More info](#)
- All racks passed Center of Gravity tests [More info](#)

NeXtScale & x-config - Cluster configuration Export

Here is the 'Review selections' window. If the prior selections are correct, then select 'Finish'.



NeXtScale & x-config - Cluster configuration SOVA

Here is a view of the 'SOVA Validation results' pop-up window. This shows my training solution is valid/successful. Lastly, select 'OK' to clear the message window. We are done!

The screenshot shows the x-config application window. The title bar indicates the file path: C:\Users\Bill\Desktop\CS_NeXtScale IBB Training PPT_14Nov2013.cse. The main window has a menu bar (File, Preferences, Wizards, Rules, Actions, View, Help) and a toolbar with Save, Export, Undo, and Redo. The status bar at the top shows 'Solution: Intelligent Cluster, General Purpose', 'Total List Price: 1,222,905 USD', and 'Country: United States'. Below the status bar, there are buttons for Save, Export, Undo, and Redo, and a configuration availability indicator: 'Configuration Availability: [Red Circle] - Extended lead time / limited availability'.

The interface is divided into several panes:

- About the configuration:** A warning icon and text: 'This configuration is not FastPath compliant.' with a 'Show details' link.
- Integrated products:** A tabbed interface with 'Racks', 'Items', and 'Non-racked items' tabs. It contains a list of racks: 'Rack_2185' (Quantity: 1 +/-) and 'Rack_NeXtScale rack 1' (Quantity: 1 +/-). Below this is a list of items: '[1410 HPB, A2M8] Intelligent Cluster 42U ... Slots used: 42/42' with a 'View/edit rack' link, and 'Rackmount items (Add, update, delete)'.
- Rack view/update:** A central diagram showing a rack layout with components like 'NextScale chassis', 'Nodes', and 'Highspeed_2185'. It includes options to 'Update the rack (Rack_NeXtScale rack 1)', 'Modify quantity', 'Auto allocate', 'Change options', and 'Remove with its contents'. A note says: 'Right click on the diagram below to see the available actions for each item.'
- Item view:** A list of items for 'NeXtScale Block_NeXtScale block 2 (~ 1,044,005 USD)'. It includes 'Non-Blocking IB building block 2', 'Slots: 22 - 42', and 'Availability: D - Extended lead time / limited availability'. A list of items follows: '2x [A4WX] Switch Seal Kit', '2x [A4HK] Mellanox SX60xx/10xx 75mm Recessed Enterprise Rack Mount Kit', '3x [A4SJ] IBM NeXtScale n1200 Enclosure Logo Nameplate', '3x [A41Y] n1200 Enclosure Chassis Label GBM', '3x [A41G] n1200 Enclosure fan Power Control Card Assembly', '3x B [A485] n1200 Enclosure Shipping Bracket Kit', '3x B [A4AK] KVM Dongle Cable (~ 39 USD)', '3x [A41H] n1200 Enclosure Midplane Assembly', and '30x B [A41F] n1200 Enclosure Fan Assembly'.
- SOVA Validation results:** A central dialog box with a green checkmark and the text 'SOVA Validation was successful.' Below this is a link for 'SOVA Validation details' and an 'OK' button.
- Messages:** A pane at the bottom right showing a list of messages: 'Rack_2185: Highspeed switches 0449(HCD/HCN), 0724(HCG/HCA), 7309(HC4/HCE/HCM) and 4668-HC', 'Highspeed_Compute_NeXtScale_Loop main: For 0724HCG the current availability is 'D': Extended lead time', 'Highspeed_2185: For 0724HCG the current availability is 'D': Extended lead times and/or limited availability', 'Configuration includes items with unclassified availability More info', 'Rack power updated More info', 'Cabling updated More info', and 'All racks passed Center of Gravity tests More info'.

NeXtScale & x-config - Resources

- NeXtScale Sales & Technical Training:
 - BP (Systems College): <https://www-304.ibm.com/services/weblectures/dlv/Gate.wss?handler=Login&action=index&customer=partnerworld&offering=camp>
 - IBM (Smart Zone): <http://lt.be.ibm.com/services/weblectures/dlv/Gate.wss?handler=Login&action=index&customer=ibmintra&offering=camp>

- x-config Help, Support & Training:
 - BP & IBM: <https://www.ibm.com/products/hardware/configurator/americas/bhui/asit/help.html>

- x-config Install:
 - BP & IBM: <https://www.ibm.com/products/hardware/configurator/americas/bhui/asit/index.html>