IMPROVING SOFTWARE TESTING EFFICIENCY USING AUTOMATION METHODS

A Project Report

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Abstract

Global economic downturn and the increased complexity of next generation telecom equipments are demanding telecom equipment vendors to adapt to cost effective, faster, reliable, and efficient methods to test their products. Automation testing provides many improvements over traditional methods of manual testing and many equipment vendors are introducing test automation to validate their products. In this project, we have analyzed and developed an automation testing method that is required for software testing over telecom network elements. The test results after executing test automation validated that the automation testing provides significant improvements over manual testing. Further, this report provides the business and technical aspects for creating a versatile automation framework for telecom industry that will increase the software testing efficiency, reliability, and accuracy.

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1 Introduction

With the increase in complexities for today's telecommunication network elements, the growing trend among network element manufactures is to adapt to newer methods such as test automation to ensure quality of their products. Test automation is one of the key areas for improvement in many companies and companies are developing customized solutions to test their products. However, this approach lacks wider acceptance since the automation tool developed is not versatile enough and cannot address multidimensional demands. There is no generalized tool available for test automation, but the work is in progress to develop such framework by many software vendors. In our project, we will examine the importance of automation testing and provide the advantages that a network element vendor can gain by adapting to test automation methods. We developed a test automation framework for our industrial sponsor's (Tellabs) network element, 8800 series Multi Services Router (MSR). The Tellabs 8800 MSR is a next generation high-end router used by many telecom and network service providers worldwide for carrier-class services. The 8800 MSR processes data in the Layer-2 and Layer-3 layers of the OSI (open systems interface) seven layer topology. In addition to the development for test automation, this document also covers economic justification for test automation framework for telecom networking elements.

1.1 Purpose

The purpose of this project is to create a test automation framework for testing the network elements of Tellabs's 8000 series router. The developed test automation will be executed over Tellabs 8800 series router to evaluate the advantages of automated testing such as cost savings, increased productivity, and testability in testing the telecom network elements. Creation of test automation for testing scalable and difficult scenarios such as 2000 interfaces is the main goal for this test automation development. The test framework developed as part of this project uses Tellabs routers as a test bed, but commercializing it for other network elements is an option. This project work also intents to evaluate economic justification and identify the return on investment (ROI) on automating the software testing of the telecom network elements.

1.2 Scope

The scope of our project work covers development of the automation test framework required for testing Tellabs 8800 series MSR router. Using the developed software code, we will validate the results against our baseline requirements. Further, we will justify the economic viability of our test automation development project and develop a business plan to market the test automation product.

2 Hypothesis

Today's advanced telecom and networking equipment gears have complex features that require thorough validation and testing before introducing to the field.

Telecom and networking equipment vendors cannot afford manually testing their equipments since it takes too much time and resources. Equipment vendors are introducing more automation in their development and regression testing. Automation testing of software systems provides a more cost effective and efficient solution. Automation testing is very reliable and it provides accurate results that are difficult to manipulate.

2.1 Verification of the Hypothesis

In order to validate the hypothesis an automation framework was developed, the developed scripts and library files were tested and validated using the automation framework. Software automation testing executed on Tellabs-8800 series router and the test results computed. The feature that we identified in coordination with the industrial sponsor was a scalable network topology with 2000 IP (Internet protocol) interfaces on Tellabs 8800 MSR. The results recorded for manual testing versus automation testing proved that the automation testing provides significant improvement over manual testing. The section-7 “Automation Testing Implementation” provides details of the recorded parameters and computations for verification of the hypotheses.

3 Automation Testing

“Automated testing uses a computer system to send commands and receive responses from telecom network elements. Tests can be run unattended and results are recorded in a log file for analysis and test report generation. A telecom network element

may be supporting hundreds of features and each feature may have hundreds of test cases to verify. With the challenges in today's networking or telecommunication market, the reduced development cycle times have become a necessity for a particular company's survival. This makes test automation a critical strategy for high tech organizations involved in the development and production telecom equipments. In the past equipments manufactures had to deal with less complex situations which were easy to handle manually, but with the explosive pace of complexities of today's market requirements, test automation is necessary to ensure satisfactory test coverage and for reducing risk." (Suresh Thuravupala, 2008).

Scripting Languages

There are many scripting languages such as TCL, PERL, and PYTHON etc. that are used for automation development. The scripting languages help the developer to create various library files and modules. These libraries and script modules help to run test cases and to validate functionalities of the software under test.

TCL Language

TCL is the scripting language used for developing this test automation project. TCL stands for "Tool Command Language", TCL is a scripting language used for developing many computer applications. "TCL has native support of all APIs needed for test development, such as network management and package generation" (Carl, 1998). TCL is "available for distribution". TCL is easy to learn and use. That is why users can develop TCL scripts just by learning application related commands. "This allows user to customize or add new functionality into existing application. It runs on multiple

operating systems such as "windows 98, XP, Vista, Linux, Solaris, and Mac OS". TCL allows “rapid development” because TCL is interpreted language. There is no need to recompile code every time as changes are made.” (Carl, 1998).

TCL allows us to make C procedure available to use. TCL has many extensions and set of applications that are useful for test script development. “EXPECT” an extension of TCL is highly recommended for test development because it allows user to write interactive script. "EXPECT is a TCL program that plays back responses to interactive, character-based programs. Test developers write scripts to instruct expect what output to listen for during the session and what responses to send back. EXPECT can be used to automatically control programs such as FTP, telnet, rlogin, and tip. Since most all network devices support telnet access, it can be used to automate remote configuration via telnet.” (Carl, 1998). TCL is open source, means its source code is freely available and any developer can modify it.

4 Test Automation Framework

The test automation framework that we plan to implement in our project has the following functional blocks:

1. Test Execution Engine
2. Test Case /Test Suit
3. Results
4. Test Bed
5. Scripts file

6. Setup File

These functional blocks interconnect to form the proposed automation framework for our project. The Figure-1, below depicts the framework or the architecture of the automation tool that we plan to develop for testing our industrial sponsor's router product.

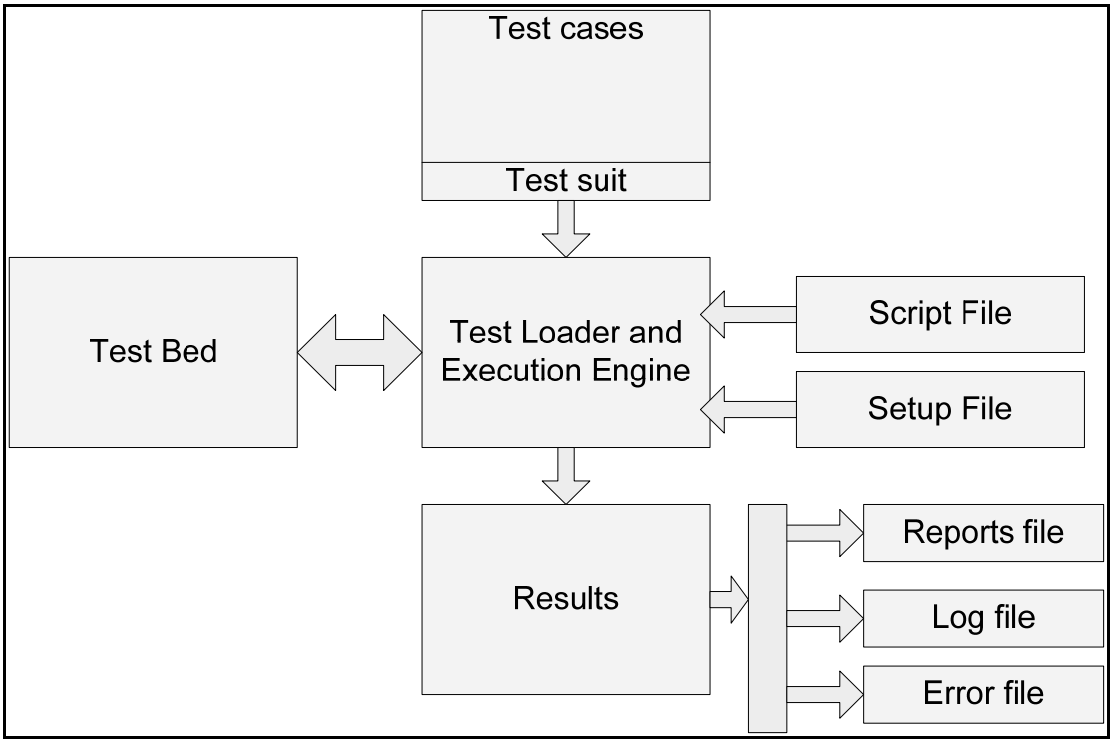


Figure 1: Automation framework
Source: (Suresh Thuravupala, 2008)

4.1 Design Specification for the Automation Framework

In order to measure the success of the framework a baseline needs to be identified, that will be developed to automate the testing of the software features on the 8800 router. This baseline or set of specification will help to measure whether the

framework meets the desired goal. The specifications that the automation framework will require to achieve are the following:

1. Time saving of 80% or better
2. Accuracy of 95% or better
3. Cost Saving of 40% or better
4. Productivity increase of 350% or better

4.2 Automation test set up

The figure below shows the automation set up for testing the Tellabs 8800 test bed that will comprise of one or more of 8800 series router, test instruments, and traffic generator etc. QA engineers will store test script files and library files on the UNIX server machine.

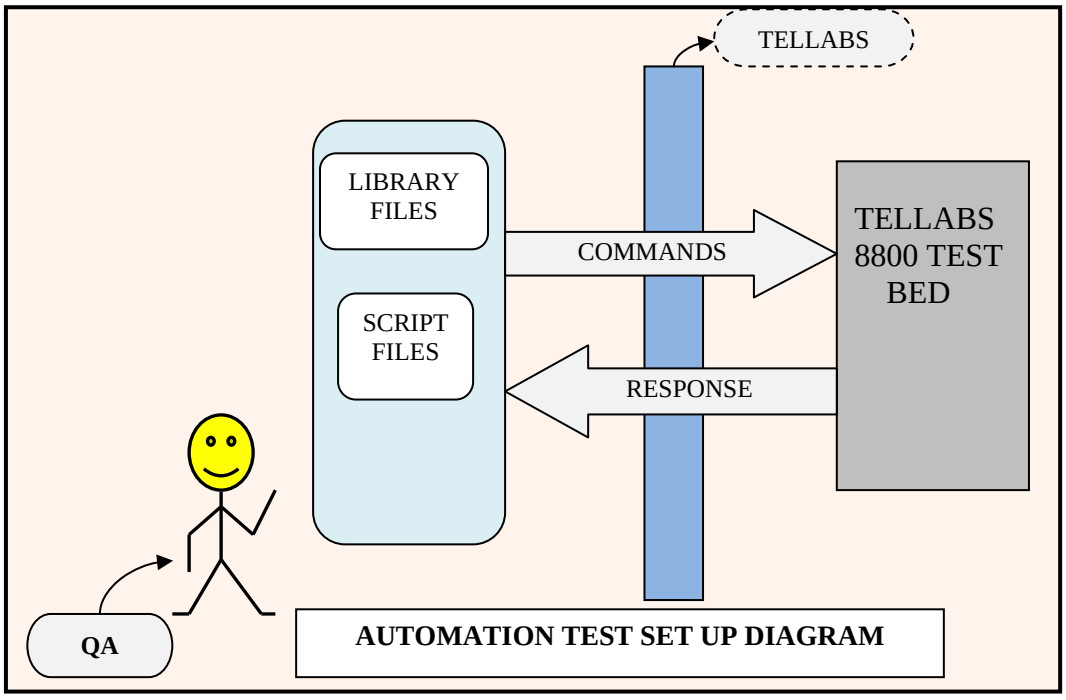


Figure 2: Automation Test Set up

Test scripts creates telnet session with 8800 series router and sends CLI commands to the router and based on response from the router test scripts store results in the “Test Result file” and “Log files”.

5 Product Description

The figures below show the picture of a Tellabs 8800 series router, used as the device under test (DUT) for this project. “The Tellabs 8800 Multiservice Router (MSR) series is a next-generation multi-service edge router built to deliver high-performance, carrier-class service.

Figure 3: The Tellabs 8860 Multiservice Router
(Source: Tellabs (2009))

The Tellabs 8800 MSR Series supports any-to-any Layer 2 network and/or service interworking reliably and concurrently. It provides service providers a graceful migration path to a converged MPLS-enabled IP network. The Tellabs 8800 MSR Series enables

connection-oriented network characteristics such as QoS (Quality of Service) and security with powerful MPLS traffic engineering capabilities while maintaining the superior scalability and flexibility of pure IP networks." (Tellabs, 2009). The 8800 MSR, which acts as a network element processes data protocols for switching and routing at the data link and the network level. These processes run with the help of highly complex embedded software running advanced switching and line cards of the system's hardware. At the software, level the 8800 MSR supports most advanced features of the Ethernet, ATM, FR and IP routing. The user interface hardware that 8800 MSR supports range from OC3, OC12, OC48, OC192, Gigabit Ethernet etc. modules. The automation software that we developed interfaces with the user modules such as OC3, OC12, OC48, OC192, or Gigabit Ethernet and configure the system with various Layer-2 and Layer-3 features for data transmission.

"The Tellabs 8800 MSR Series is available in three chassis sizes , 6 slots (Tellabs8830), 15 slots (Tellabs8840) and 19 slots (Tellabs8860), all of which share a wide range of interfaces with unmatched service flexibility. The Tellabs 8860 Multiservice router shown in Figure 3 above combines Layer 2 switching and QoS capabilities with the flexibility and intelligence of Layer 3 routing." (Tellabs, 2009).

6 Advantage of Automation testing

Automation testing provides many advantages and some of them are listed below which are highly relevant for telecom network element test automation.

6.1 Reduced test cycle time

Network Elements used in telecommunication networks consist of many pieces of hardware and software components. In order to cater to the demands of the customer, the equipment manufactures create hundreds of software features running on network elements. The manufacturers test each of these software features against the requirements documented in FRD (Feature Requirement Document) or PRD (Product Requirement Document). Validating this as part of the quality assurance process will take many days of manual testing. It is in this context the importance of automation testing is emphasized. Automation testing can considerably reduce the testing time and in most cases a reduced test cycle time up to 50% or more is possible.

6.2 Repeated testing

During development of a telecom network element, developers test a software feature multiple times - first at unit level, followed by fully integrated software level, then feature development or system testing and finally, in regression testing. Manually testing a feature so many times consumes company's resources and increases the cost at each stage. Instead, developing an automation script at the initial stage enables repeating tests any number of times while saving the cost and other resources for testing.

6.3 Avoiding errors

"Often human errors happen during manual testing, where as such errors in observations and calculations can be avoided by automating test cases. Further, there are chances that manual testing in an uncontrolled environment may manipulate the results. Automation testing avoids any chance of data being manipulated." (Suresh Thuravupala, 2008).

6.4 Testing complex scenarios

Testing multiple network elements in large network topologies, stress, scalability, boundary conditions involves many days of planning and configurations. Since manual testing has many practical limitations, automation testing is well suited in such scenarios. A well-written automation code for creating four network interfaces extends very easily for testing eight, sixteen, or sixteen hundred interfaces. The same code runs over one or many number of network elements by changing the target IP addresses or any other parameters. Thus, automation testing simplifies testing over thousands of network interfaces or connections for complex testing scenarios.

6.5 Cost benefits

The analysis below shows the saving potential when companies adapt to test automation. In this analysis, a company employing 50 manual test engineers spends huge amounts from Year-1 to Year-5. The comparison of cost for manual and automation testing shows automation has huge cost benefits.

	Year-1	Year-2	Year-3	Year-4	Year-5
Number of test engineers	50	50	50	50	50
Annual Salary in $ millions	$5.500	$5.500	$5.500	$5.500	$5.500
Overhead and Administration cost in $ millions	$2.750	$2.750	$2.750	$2.750	$2.750
Total Manual Testing cost in $ millions	$8.250	$8.250	$8.250	$8.250	$8.250

Table 1: Cost for manual testing for 5 years
(Source: Industrial sponsor)

The above table shows that the cost for manual testing remains the same over a five-year period considering zero changes in the values on cost. Now we will examine how much the automation can save for the same company. The increase in productivity after automation allows the company to reduce the numbers of test engineers (to 15, 10 in Year-1, and Year-2 respectively) until it reaches an optimal number of five test engineers. This is based on the approach that more and more tests are automated which enables in 5 years an optimal number of 5 test engineers can handle the work which was previously done by 50 engineers.

	Year-1	Year-2	Year-3	Year-4	Year-5
Number of test engineers	15	10	5	5	5
Annual Salary in $ millions	$1.650	$1.100	$0.550	$0.550	$0.550
Overhead and Administration cost in $ millions	$0.825	$0.550	$0.275	$0.275	$0.275
Automation Testing cost in $ millions	$2.475	$1.650	$0.825	$0.825	$0.825
Cost savings due to automation or benefit in $ millions	$5.775	$6.600	$7.425	$7.425	$7.425
Net cost savings =Cost savings due to automation- cost to automate , in $ millions	$3.946	$4.771	$5.596	$5.596	$5.596

Table 2: Automation testing- Cost and benefit analysis
(Source: Industrial sponsor)

The above table shows that adapting to automation testing reduces the cost year after year and the net cost savings increasing from $3.946M to $5.596M in 5 years. The cost savings due to automation is a result of subtracting the total automation testing cost from total manual testing cost. For example during the Year-1, $8.25M - $2.475M = $5.775M. Later sections show that the investment required for developing test automation is $1.829M. The net cost savings is calculated based on the formula "Net Cost Savings = Cost Savings due to automation - Investment required for developing test automation". From this formula for the first year, Net cost savings = $5.775M - $1.829M = $3.946M. The net cost savings increased year by year due to automation. This resulted in the reduction of number of test engineers every year as shown in the table above. Therefore, by adapting to automation testing, the net cost savings reached $5.596M in the

fifth year of operation for a typical test group of 50 manual test engineers as shown in the example. The Figure-4 below shows the costs associated with manual and automation methods of testing. The manual testing cost remains the same at $8.25M, whereas the automation testing cost significantly reduced during the first two years and reaches to an optimal cost just to sustain the testing.

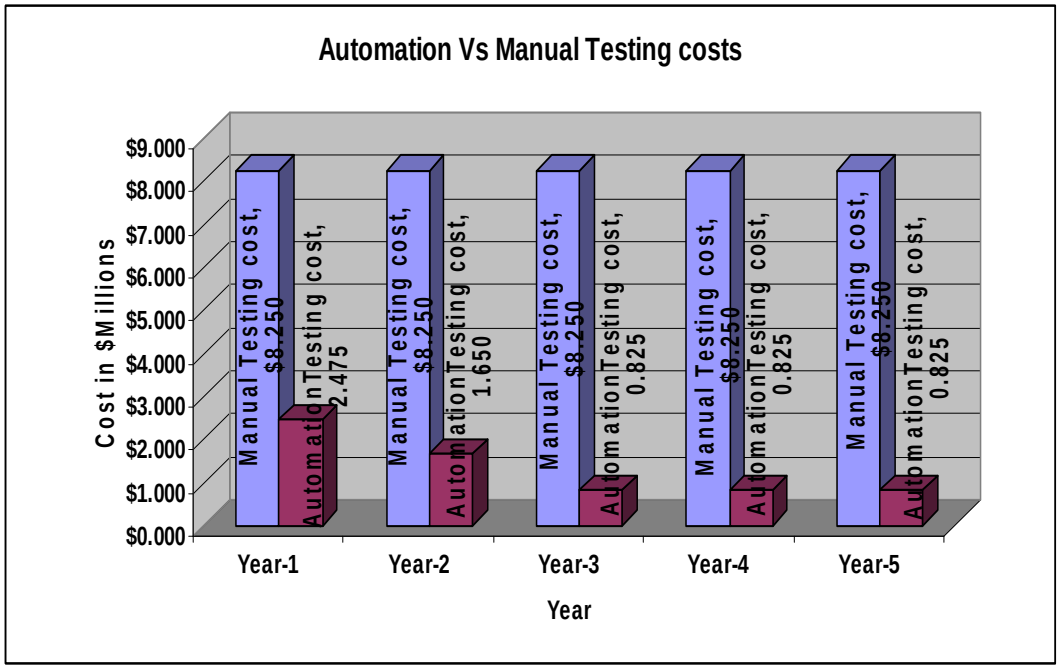


Figure 4: Manual testing cost compared against automation testing cost

The table below shows aggregate costs over five year period associated with automation and manual testing.

	Manual	Automation
Overall Cost for 5 years, in $ millions	$41.25	$6.60
Cost savings over 5 year period, in $ millions	Nil	$34.65

Table 3: Aggregate costs associated with automation and manual testing

The percentage cost savings for a five year period due to automation can be calculated using the formula:

"**Percentage cost savings due to automation** = Overall Cost savings due to automation / Overall cost for manual test)*100" = ($34.65/$41.25)*100 = **84%**

The above calculation shows that significant cost savings as high as 84% can be achieved in a five year period by adapting to test automation methods.

7 Automation Testing Implementation

In order to implement the automation testing on Tellabs 8800 series router a number of script and library files are created. The automation development can fall in to three major modules. Appendix-A shows the software codes developed for automation testing on Tellabs 8800 series router along with the log files as a result of running test automation. The automation software code and logs given in the Appendix-A are categorized as Module-1, Module-2 and Module-3. A brief description of these modules is as shown below:

Module-1: Comprises of TCL scripts for the libraries. The table below shows the script library files developed as part of the test automation implementation.

Script Library name	Type	Purpose
proc connect8800	TCL procedure	Connects to the Tellabs 8800 router and returns a session ID which can be used for further communication with the system
proc issueCommand	TCL procedure	Uses the session ID provided by the connect8800 procedure and sends commands to the system. Used for command line interface (CLI) communication
proc issueCommand1	TCL procedure	This is a variation of the "issueCommand" procedure with additional arguments to get more control in the session
proc issueCommandwithTout	TCL procedure	This is a variation of the "issueCommand" procedure where a timeout can be provided as an argument and system will timeout if a response is not received within a specified time period, for example 30 seconds
proc parseArgs	TCL procedure	Provides parsing facility for the response obtained from the router and can be used to compare the expected and actual results. Parsing will make a decision to PASS or FAIL a test case
proc enableAdminMultiVTs	TCL procedure	The Virtual Tributaries (VTs) contain the data carried by the system. This procedure allows to enable the administration state of the VTs
proc enableAdminMultiDS1s	TCL procedure	The DS1s are considered as payload information for the Virtual tributaries. This procedure allows to enable the administration state of the DS1s

Table 4: Test Automation script library files

Module-2: Comprises of TCL scripts to run automation using the Module-1 scripts. The most important script that we created and tested is to create a scalable system by creating 2000 interfaces on Tellabs router. We used the script "Create2000_IPint.exp" for this purpose. The Appendix A provides the details and the code developed.

Module-3: Comprises of output log files generated and stored by running Module-2 test automation software on Tellabs 8800 series router. The Appendix A provides the details of the code captured.

7.1 Test Automation - measured results

The calculations below show the improvements that occurred after implementing the scripts for automation. The approach followed here was to record the timings and parameters generated for 2000 IP interfaces on Tellabs 8800 series router using both automated and manual methods. The recorded results are compared to calculate the improvements achieved by automation. The comparison table at the end of this section tabulates the results.

Calculations for time savings: Manual testing

Number of commands required for creating one IP interface on Tellabs 8800 router = 8

Time taken for manually sending 8 commands to Tellabs 8800 router = 5 minutes

Time taken to create one IP interface on Tellabs 8800 router = 5 minutes

Time taken to create 2000 IP interfaces on Tellabs 8800 router = 2000*5 = 10000 minutes or about 21 days (considering 8 hours of manual testing /day).

Calculations for time savings: Automation testing

Number of commands required for creating one IP interface on Tellabs 8800 router = 8

Time taken for sending/responding 8 commands to Tellabs 8800 router = 40 seconds

Inter command gap period given in automation script = 2 seconds

Total inter-command gap period between 8 commands = 16 seconds

Total time to send/respond with inter-command gaps for 8 commands = 56 seconds

Time taken to creation one IP interface on Tellabs 8800 router = 56 seconds

Time taken to create 2000 IP interfaces on Tellabs 8800 router = 2000*56/60 = 1866.7 minutes or 31.11 hours or about 3.89 days (considering 8 hours of testing /day).

Calculations for accuracy measurement: Manual testing

Number of IP interfaces attempted to create manually = 2000

Actual number of IP interfaces retrieved from system at the end of 21 days = 1968

Number of missing interfaces = 2000 -1968 = 32

Percentage error = (32/2000)*100 = 1.6 %

Accuracy = 100% -1.6% = 98.4%

Calculations for accuracy measurement: Automation testing

Number of IP interfaces attempted to create using test automation = 2000

Actual number of IP interfaces retrieved from system at the end of automation = 2000

Number of missing interfaces = 0

Percentage error = (0/2000)*100 = 0 %

Accuracy = 100% -0% = 100%

Calculations for Cost savings: Manual testing

Labor rate for manual test engineer = $75/hour

Adjusted labor rate = $75+$37.5 = $112.5 (added 50% for benefits and other)

Number of working hours per day = 8 hours

Total labor charges for 21 days of manual testing = $112.5*8*21 = $18,900

Administration and overhead costs for an engineer for a day = $500

Administration and overhead costs for an engineer for 21 days = 21* $500=$10,500

Total cost for manual testing =$29,400

Calculations for Cost savings: Automation testing

Labor rate for automation test engineer = $80/hour

Adjusted labor rate = $80+$40 = $120 (added 50% for benefits and other)

Number of working hours per day = 8 hours

Total labor charges for 3.89 days of manual testing = $120*8*3.89 = $3734.4

Administration and overhead costs for an engineer for a day = $500

Administration and overhead costs for an engineer for 3.89 days = 3.89* $500=$1945

Total cost for automation testing =$3734.4+$1945 = $5679.4

Productivity calculations

As given in the "Center for Information-Development Management" newsletter, "To measure productivity, you simply count the number of widgets produced and divide by the amount of time or cost it took to produce them." (Infomanagementcenter, 2004). In the case of manual or automation testing for creating 2000 numbers of IP interfaces on Tellabs 8800 router, each interface can be considered as a widget.

Calculations for Productivity: Manual testing

Time taken for manual testing of 2000 IP interfaces = 21 days

Productivity factor for manual testing calculated based on time = 2000/21 = **95.238**

Productivity factor for manual testing calculated based on cost = 2000/29400 = **0.06802**

Calculations for Productivity: Automation testing

Time taken for automation testing of 2000 IP interfaces = 3.89 days

Productivity factor for automation calculated based on time = 2000/3.89 = **514.138**

Productivity factor for automation calculated based on cost = 2000/5679.4 = **0.3521**

The benefits of our test automation measured from actual tests run on Tellabs 8800 meet or exceed our hypotheses. The following table shows overall test results.

	Manual Testing	**Automation Testing**	**Benefits due to automation**	**Benefit due to automation in percentage**
Time	21 days	3.89 days	17.11 days savings	**81.47%** savings over manual testing
Accuracy	98.4%	100%	100% accuracy	**100%** accurate results
Cost	$29,400	$5679.4	$23720.6 savings	**80.68%** less than manual testing
Productivity based on time factor	95.238	514.138	418.9 factor increase	**439.85%** increase in productivity
Productivity based on cost factor	0.06802	0.3521	0.28408 factor increase	**417.64%** increase in productivity

Table 5: Automation test results compared with Manual test results

	Targets to achieve	Actual measured result
Time savings	80 % or better	**81.47%**
Accuracy	95% or better	**100%**
Cost	40% or better	**80.68%**
Productivity based on time factor	350% or better	**439.85%**
Productivity based on cost factor	350% or better	**417.64%**

Table 6: Actual measured benefits for automation vs. targets to achieve

In the above table, the values for "Targets to achieve" are coming from the baseline requirements described in section 4.1. The actual measured results prove that the test automation product developed exceeds the design specification requirements.

8 Economic Justification

8.1 Executive Summary

The market for test automation software is experiencing a rapid growth and is forecasted to grow from few million to $1.5 billion within the next few years. Telecom equipment vendors are currently spending huge amounts of money on traditional manual testing methods. Most equipment vendors develop their own customized solutions for testing their equipments. However, they are facing many challenges since their approach is not a total testing solution. A generalized testing solution provides versatility and can meet the current market demands. Due to our unique design, our approach can meet what

the telecom equipment vendors are looking for and bring us huge revenue opportunity. Our generalized design facilitates connecting to varieties of data traffic generators and physical layer test instruments in a multidimensional test environment. Our test automation software will help reduce testing costs, improve productivity and accuracy of testing. Further, our test architecture shall provide robustness and stability with a simplified testing approach.

The investment capital cost required for prototype development is $1.829 million and it is split as $1.484 million in personnel costs, $250,000 in fixed costs, and $100,000 in overhead costs. Further to reach up to the breakeven period another $1.584 million is needed which is required for salary and overhead expenses. Initial investment of $3.451 million will result in total benefit of $21.32 million by the end of 2014 resulting in 550% ROI in 5 years of operation after development.

We plan to raise $1.829 M as the initial part of the funding in 2009 and make our prototype model. The potential customers are major telecom equipment vendors such as Cisco, Qualcomm, Juniper, Nokia, Motorola, Alcatel Lucent, Ericsson, Samsung, Ciena, Tellabs etc. Our revenue model is based on License fee and we expect to breakeven by year 2010. The revenue is expected to grow from $2.29 million in 2010 to $24.61 million in 2014.

8.2 Problem statement

Software testing costs more than 50% of the entire software development cost. Software testing also takes considerable time of the software development cycle. Some elements of software development are difficult to test using manual testing, for example load testing of 1000 simultaneous users. Therefore, more companies in telecom industry develop in-house software testing automation framework to increase testing efficiency and reliability. There is a need to develop a standard commercially available automation test framework that can be plugged into different systems with minor modifications. This will help companies save time and money spent in developing the in-house automation products. This system will increase the time savings by 80% or more and achieve cost saving of 40 % or more over a period.

8.3 Solution and Value Proposition

A generalized automation framework will reduce the efforts in manual testing and provides a versatile testing solution. The test automation framework will significantly reduce cost of testing network elements such as Tellabs 8800 series router. As shown in our measured test results in section 7.1, the time for testing reduced from 21 days to about 4 days using test automation. Results of testing using automation framework will be more reliable and accurate as compared to manual testing. Our framework will significantly improve the efficiency and productivity as shown in section 7.1 and will allow to considerably reduce the number of test engineers.

8.4 Market Size

Test Automation experts from our industrial sponsor Tellabs believe that the market for test automation software will be growing significantly in the next few years. Tellabs continually explores with the software vendors and considers that automation testing software vendors have already emerged in the market and it is showing a high growth potential. Current leading players in the automated testing tool market include Wind River, Borland, and HP-Mercury Interactive. (Mercury interactive, 2009 and Wind River, 2008). In addition to this, most of the telecom equipment vendors develop test automation software for custom solutions. These companies may eventually move to generalized test automation software. According to Wind River one of the major players of automation software tool, "Wind River is addressing this market challenge by automating the software quality assurance process which can contribute to quicker time-to-market and higher product quality. VDC's 2008 survey of embedded developers shows that developers using test automation tools report a greater percent of their projects completed on or ahead of schedule than those who are not using a formal test automation tool." (Wind River, 2008).

Further, a recent acquisition of Segue software by Borland solutions a global leader in technology sector is an indication of an emerging market in this field. As stated in a Borland article "Borland's Solution-Oriented Approach to Improving Software Delivery Processes, the market for Software development for automation and life cycle management is forecasted to grow to a few billion dollar business in 2009." (Borland Software Corporation, 2008). According to a press release from Borland, "Borland's

ALM solutions play a critical role in helping enterprises manage the complexity of software development and delivery, by providing business, development, and operational teams with increased visibility and control over all phases of the software lifecycle. This is especially crucial for large enterprises working within heterogeneous and distributed environments. IDC forecasts the ALM market to grow to $3.3 billion in 2009." (Borland Software Corporation, 2008).

In addition to Borland and HP, other top 11 companies engaged in test automation software are listed in the table below. These companies employ hundreds of test engineers to test their core business unit software. They spent millions of dollars every year to test their software solutions. The table below shows the list of these companies along with the details on the number of test engineers and approximate spending (market size).

Number	**Top 10 potential customers**	**Approximate number of engineers engaged in core business unit for developing automation/testing**	**Test Automation Market size in Million dollars**
1	Cisco	1500	$300
2	Juniper	700	$140
3	Nokia	1000	$200
4	Alcatel Lucent	700	$140
5	Motorola	1000	$200
6	Qualcomm	1500	$300
7	Ericsson	700	$140
8	Samsung	400	$80
10	Ciena	100	$20
11	Tellabs	30	$6
	Total	7630	$1,526

Table 7: Top 11 companies engaged in custom test automation software
(Source: Survey conducted over networking professionals and Salary Wizard, 2008)

8.4.1 Revenue Growth

According to Industry center-Application software, Yahoo Finance, the application software has a total market capitalization of $459 billion, as of October 6, 2008. With very few companies in the market, the ALM market share is currently less than $100 million. The application software is in the mature market and typically the growth is 10 % or less, whereas the ALM software is in the growth market where the growth potential is much high. The table below lists the market share estimates until year 2011 for both lines of software assuming a 10% growth in application software and a 63% growth in the ALM software.

Category	Year 2008	Estimate for Year 2009	Estimate for Year 2010	Estimate for Year 2011
Total Application Software Market	$459 billion	$504billion	$555 billion	$610 billion
ALM market share	$100 million	$ 3.3 billion	$5.379 billion	$8.767 billion
Percentage of ALM as a fraction of Application Software	0.02%	0.65%	0.97%	1.38%
% projected growth	--	63%	63%	--

Table 8: Forecasts for ALM software market share for 2009-2011
(Source: Industry center-Application software, Yahoo Finance)

The forecasts for the ALM market share for years 2009 to 2011 as a proportion of the total application software market is shown in the figure below.

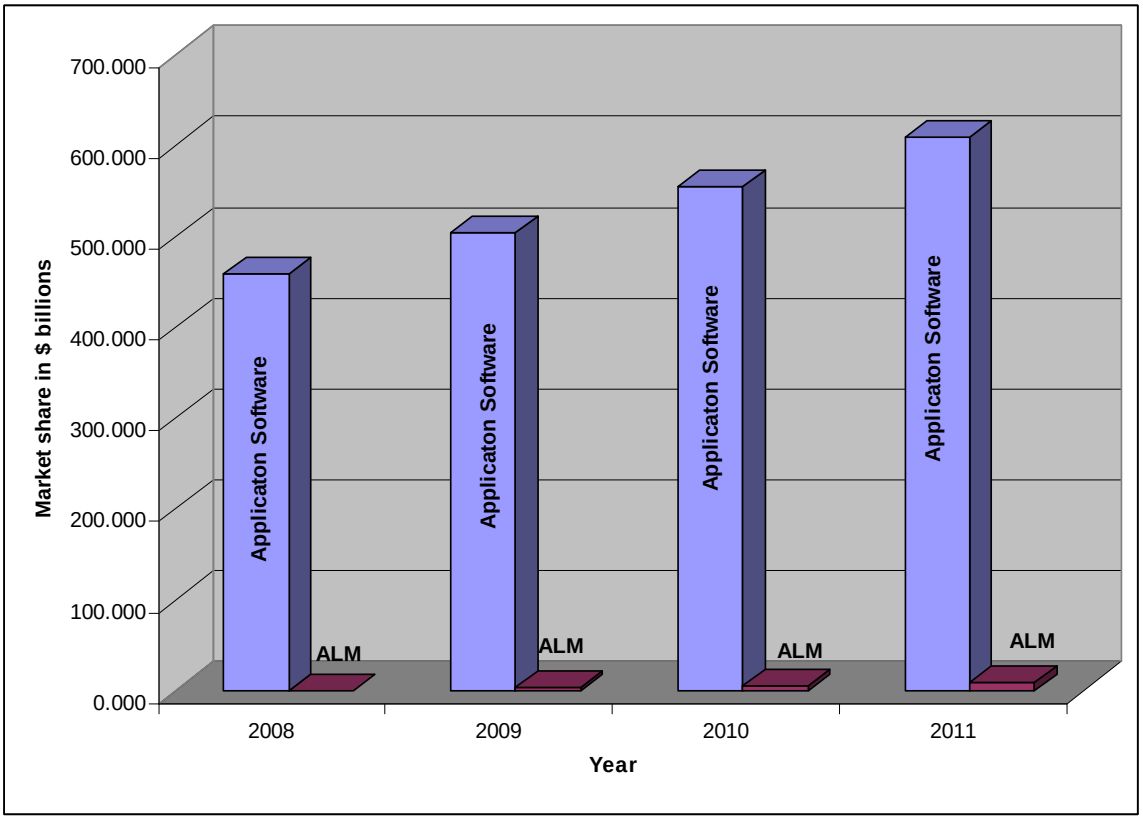


Figure 5: Market share for Application software and ALM software

In line with the projected revenue growth of the ALM software market, our automation testing software development is also estimated to yield substantial revenue growth. During the initial phase of the product development, revenues from our potential customers are as given in the table below. From our survey report, Table -7 shows Cisco employing about 1500 test engineers in their core business unit. If 2% of these test engineers adapt to our test automation it gives an opportunity to sell 30 licenses. The estimates in the table below are kept at conservative figures. However but based on the

market demand and acceptance of our technology our actual revenue growth may be much more.

#	Top 10 potential customers	# of Test Engineers	% of licenses projected from 2009 to 2014					
			0% in 2009	2% in 2010	5% in 2011	10% in 2012	15% in 2013	20% in 2014
1	Cisco	1500	0	30	75	150	225	300
2	Juniper	700	0	14	35	70	105	140
3	Nokia	1000	0	20	50	100	150	200
4	Alcatel Lucent	700	0	14	35	70	105	140
5	Motorola	1000	0	20	50	100	150	200
6	Qualcomm	1500	0	30	75	150	225	300
7	Ericsson	700	0	14	35	70	105	140
8	Samsung	400	0	8	20	40	60	80
10	Ciena	100	0	2	5	10	15	20
11	Tellabs	30	0	1	2	3	5	6
Projected sales for Total # of Licenses			**0**	**153**	**382**	**763**	**1145**	**1526**
Revenue in $ million			**0**	**$2.29**	**$5.72**	**$11.45**	**$17.85**	**$24.61**

Table 9: Projected sales for Software licenses and associated revenues

The chart below shows the revenue growth that is projected from the potential customers

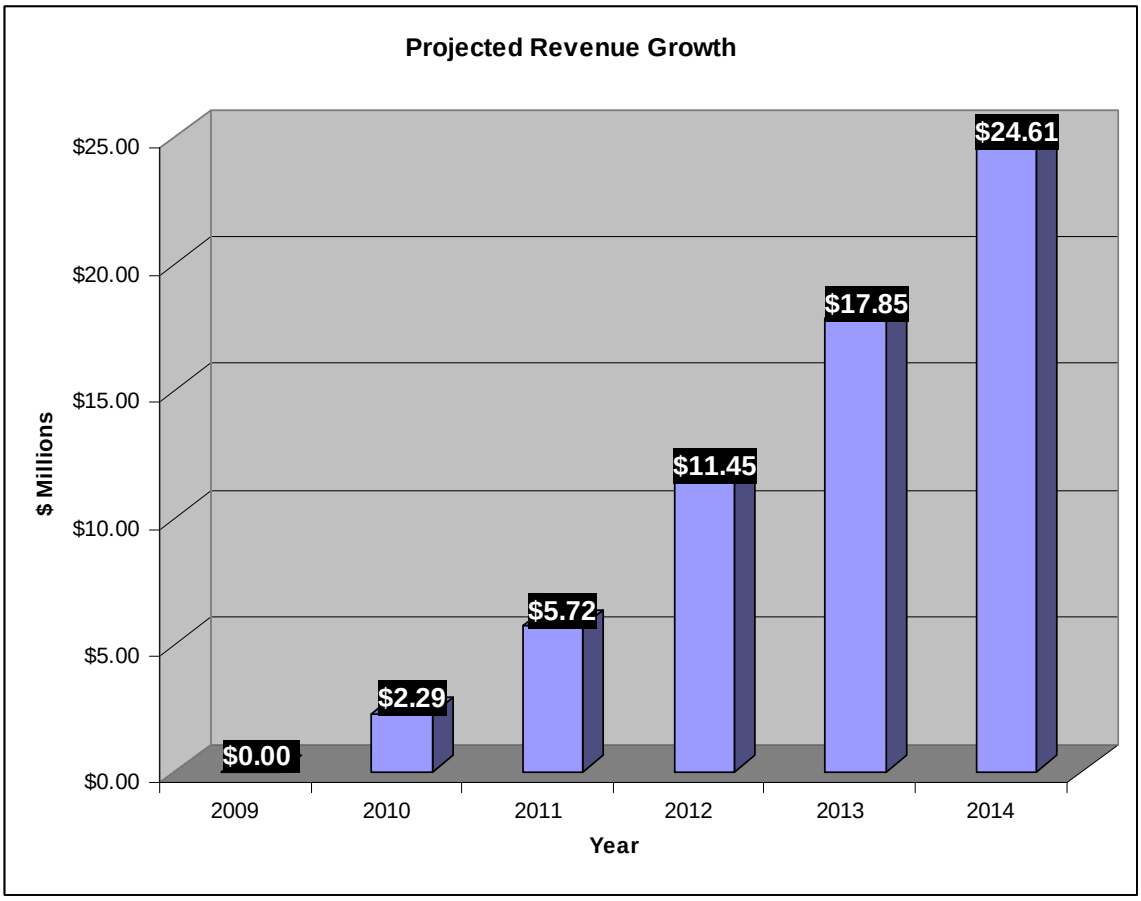


Figure 6: Revenue growth

8.5 Competitors

Due to the unprecedented opportunity as of now, we do not have any direct competitors. However, companies like IBM, Wind River, Borland, Cisco, Juniper BMC Software, Microsoft, Mercury, and Aptest can be our potential competitors. These companies have been key players in the software testing tools market. Currently there is no generalized automation framework available for telecom networking industry but these companies might be working on similar products. Although companies like Cisco and Juniper develop test automation to meet their in-house demands, they can make

changes and commercialize it. However, the drawback of such a product will be it will lack versatility and cannot provide total testing solutions that our product provides.

8.6 Customers

There is a huge market potential for the automation test software in the telecom industry. Table 10 below shows a list of potential customers who can benefit from our test automation development. Most of our customer will be from telecom industry for example Cisco Systems, Juniper and many more. The ordering of our customers is decided based on the priority of our targeting. For example, we consider Cisco the leading networking giant to be our top most customer. Juniper is second in our list because Juniper is considered a second highest leader in the networking industry followed by Cisco. The order of other companies Nokia, Alcatel Lucent, Motorola etc. are chosen since those companies will be targeted to follow the success stories from Cisco and Juniper. Our customers will get a framework, compatible to their system as well as ready to use. This will reduce the test cycle time and improve the test efficiency. In these organizations, the software automation testing engineers will be our key customers. We need to convince the middle level manager of the team to use our products and buy it. However, the actual users of our product will be software quality engineers. Apart from network product companies, companies like AT&T, Verizon, Samsung, Nokia, Sprint, T-Mobiles, Vonage, and Comcast can be other potential customers. For example, Comcast tests the scalability of routers, if they buy our product it can help in testing a scalability requirement such as support for 100,000 customers.

Sl.No.	Top 11 potential customers
1	Cisco
2	Juniper
3	Nokia
4	Alcatel Lucent
5	Motorola
6	Qualcomm
7	Ericsson
8	Samsung
9	Nortel
10	Ciena
11	Tellabs

Table 10: Potential customers
(Source: Survey conducted over networking professionals)

8.7 Cost

The table below gives the initial prototype cost to develop an automation testing harness tool. Total cost to develop the prototype would include fixed costs, variable costs, and personnel costs. The following table has the costs associated to personnel.

Personnel	Annual Salary in US $	Loaded cost, 40 % extra	Salary cost for 9 months (duration to develop automation)
CEO/CFO	200,000	280,000	210,000
VP/Director Engineering	150,000	210,000	157,500
HR Manager	120,000	168,000	126,000
Administrative assistant	58,000	81,200	60,900
QA/Automation Engineering Manager	120,000	168,000	126,000
Automation tool development engineer	100,000	140,000	105,000
Automation Scripts development Engineer-1	80,000	112,000	84,000
Automation Scripts development Engineer-2	80,000	112,000	84,000
QA test engineer-1	90,000	126,000	94,500
Automation Support engineer	70,000	98,000	73,500
Sales and Marketing Manager	115,000	161,000	120,750
Customer Support Engineer-1	80,000	112,000	84,000
Customer Support Engineer-2	70,333	98466.2	73,850
IT/GIS support engineer	80,000	112000	84,000
Total Salary Cost	**1,413,333**	**1,978,666**	**1,484,000**

Table 11: Personnel costs for developing Automation
(Sources: Survey conducted over networking professionals and Salary Wizard, 2008)

The following table has the fixed costs. Assumptions are as follows.

- Need Unix workstations costing $10,000
- Need Dell Desk top Computers costing $10,000
- Corporate software licenses required for a year costing $25,000

Fixed Costs	Total Cost (In Dollars)
UNIX workstations	10,000
Dell Computers/laptops	10,000
Routers/Switches(Test bed)	200,000
Software	25,000
Total	245,000

Table 12: Fixed costs for developing automation
(Source: Industrial sponsor)

The following table has the variable costs.

Variable Costs	Total Cost (In Dollars)
Office Space and Maintenance	60,000
Office Supplies	10,000
Other overhead- recruiting, accounting, billing, payroll, licenses, taxes	30,000
Total	**100,000**

Table 13: Variable Costs for developing automation
(Source: Industrial sponsor)

Total prototype development cost = $1,484,000 + $245,000 + $100,000 = $1,829,000

The calculations above show that approximate cost for developing automation prototype is $1.829 million. VC funding will meet the initial capital requirement.

The figure below shows how the initial funding of $1.829 million will be utilized. Major part of the initial budget will be for salary expenses since developing software code will require more engineers.

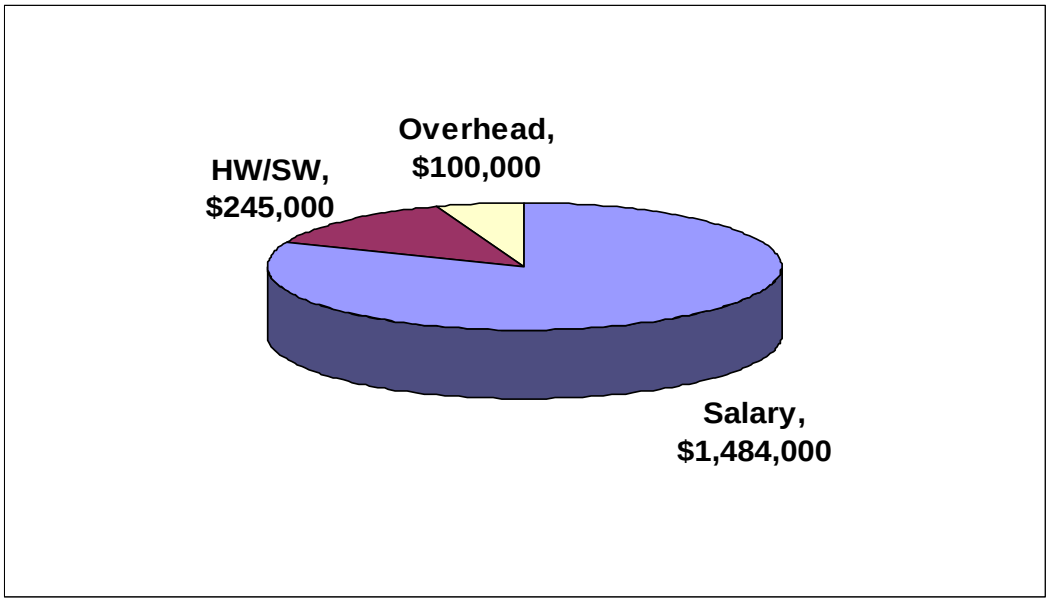


Figure 7: Distribution of initial budget

8.8 Price Point

Our license fee structure will be highly competitive compared to our competitors. Our market study shows that our competitors charges up to $15,000 per annum for test automation software, where as our fee will be only $13,000 per annum. In addition our competitors charges up to $4500 for support and $4500 for training. Our charges for

support and training will be a nominal $1000 each for the first three years and increase up to $4500 from fourth year onwards. These license pricing will be based on renewals annually. The table below details our license structure.

Item	Competition	Ours
License fee	$15,000 / Annum	$13,000/ Annum
Support	$4500 / Annum	$1000 for first 3 years and increases to $4500 afterwards
Training	$4500 / Annum	$1000 for first 3 years and increases to $4500 afterwards

Table 14: Test Automation License/Support/Training fee structure

The figure below compares our license fee structure with our competition.

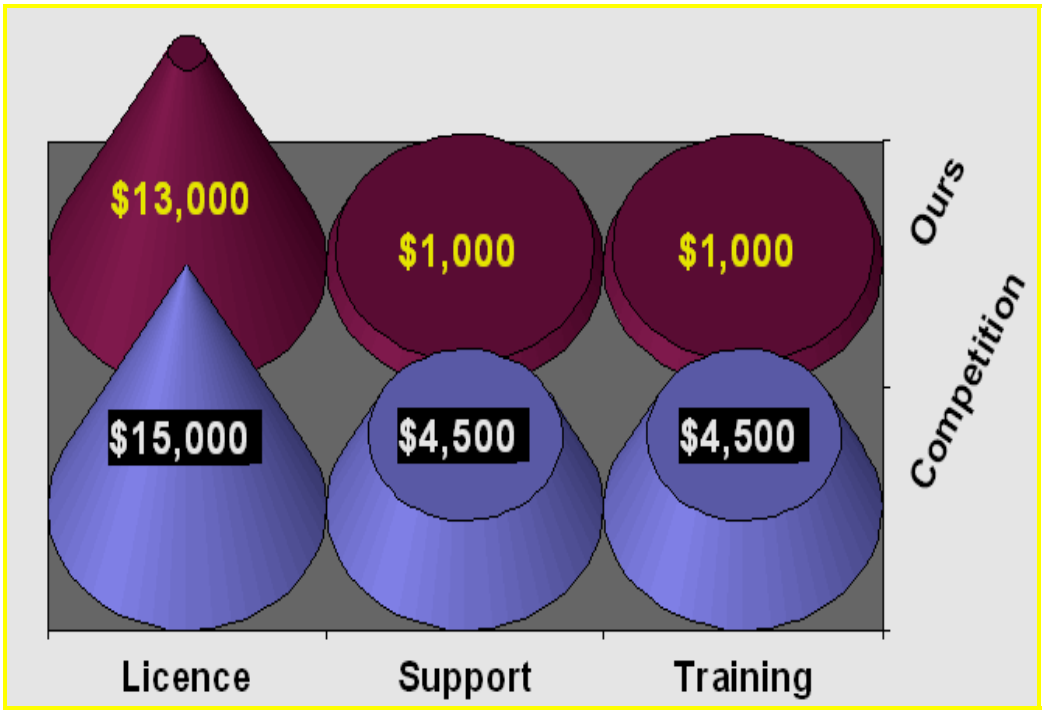


Figure 8: License fee structure comparison with our competition

8.9 SWOT Assessment

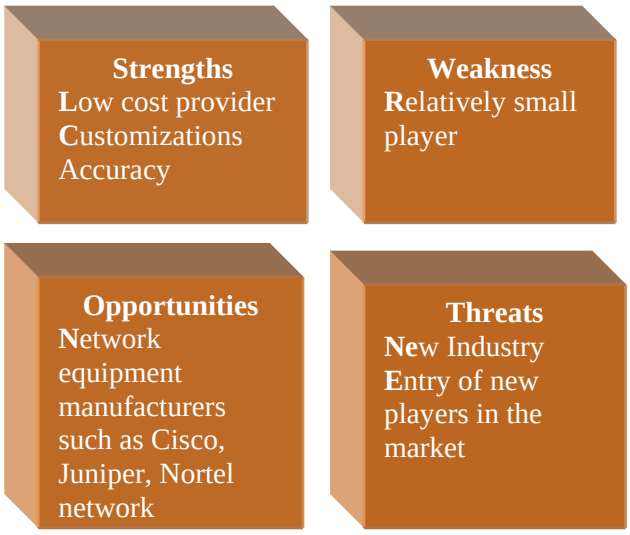


Figure 9: SWOT Analysis
(SWOT analysis, 2008)

Strengths

- Low cost provider: We are low cost solution provider for test automation framework.
- Technology: Our generalized testing architecture provides total testing solutions
- Customizations: Our test automation tool is generic enough to accommodate needs for testing other vendor's network equipments.
- Accuracy: Our test automation tool will give more accurate results than traditional methods for testing network equipment.

Weaknesses

- We are relatively small player in this emerging market.

- We do not have enough resources such as routers and switch gears of many companies. Having equipments of multiple vendors would have helped us in accelerating development and testing of our test automation software.

Opportunities

- Sell to other network equipment manufacturers such as Cisco, Juniper, Nortel network etc.
- Because of deep expertise in networking, our company may provide consulting services to other networking companies.
- We shall be able to emerge as a global player since no such solution exists currently in the global market.

Threats

- Test automation software for network equipment is relatively new industry.
- Entry of new players in the market and other network equipment manufacturers are potential threats to the business.
- Non acceptance of our solution by any of our first customers is a great threat
- Due to the generalized nature our product competitors may come up to speed on our idea and may pose potential threat for us.
- Due to the background of customers they may start developing individual. solutions based our idea unless our intellectual property is fully protected in all respects.

8.10 Investment Capital requirements

In addition to the prototype development cost, there are additional expenses to run the company until the breakeven period. The breakeven period is 9 months after the prototype development. This demands an additional funding as shown in the table below.

Salary expenses for 9 months	$1,484,000
Overhead expenses for 9 months	$100,000
Total to run the company between prototype development and Breakeven	**$1,584,000**

Table 15: Additional funding

Total funding required for reaching the breakeven period
= $1.829M + $1.584M
= $3.413M

8.11 Personnel

In order to develop automation on similar products such as Tellabs router, we will need following personnel as shown in the table below.

Number	Personnel for Automation test development
1	CEO/CFO
2	VP/Director Engineering
3	HR Manager
4	Administrative assistant
5	QA/Automation Engineering Manager
6	Automation tool development engineer
7	Automation Scripts development Engineer-1
8	Automation Scripts development Engineer-2
9	QA test engineer-1
10	Automation Support engineer
11	Sales and Marketing Manager
12	Customer Support Engineer-1
13	Customer Support Engineer-2
14	IT/GIS support engineer

Table 16: Personnel
(Source: Survey conducted over networking professionals)

8.12 Business Revenue Model

The development of test automation framework is an expensive investment for most networking companies. The changes in technology and migration to new protocols will add up the expenses. Therefore, for our company we will use subscription-based

model and further revenue will come by selling supporting features for the customers. We will develop additional features to provide customized version of the automation framework as per our customer requirements. This subscription license fee including training and support will cost $15,000 annually per license. Customers will have opportunities to install new features and additional functionality at an additional cost of $1000 per annum per functionality. For example, the GUI interface will cost them $1000 per annum. If we sell 10 subscriptions in the first year, it will generate $150,000. From time to time, we will add new features to cater to the needs of changing technologies.

8.12.1 Return on Investment

8.12.1.1 Breakeven Analysis

The Figure-9 below shows the breakeven analysis. The calculation is based on eleven of our potential customers make 2% of their test engineers adapt to our automation solutions. As a result, we shall be selling 153 licenses during the year 2010 and sales expected to increase significantly year after year. The following table displays the distribution of sales for the number of licenses, associated revenue, cost, and profit from Quarter-1 to Quarter-4 during Year-2010.

	Year 2010, Revenue/cost/Profit in $Million			
Quarter	**# of licenses**	**Revenue**	**Cost**	**Profit**
2010-Q1	25	$0.375	$0.396	-$0.021
2010-Q2	35	$0.525	$0.396	$0.129
2010-Q3	40	$0.6	$0.396	$0.204
2010-Q4	53	$0.795	$0.396	$0.399
Total	153	$2.295	$1.584	$0.711

Table 17: Distribution of Q1 to Q4 sales for year 2010

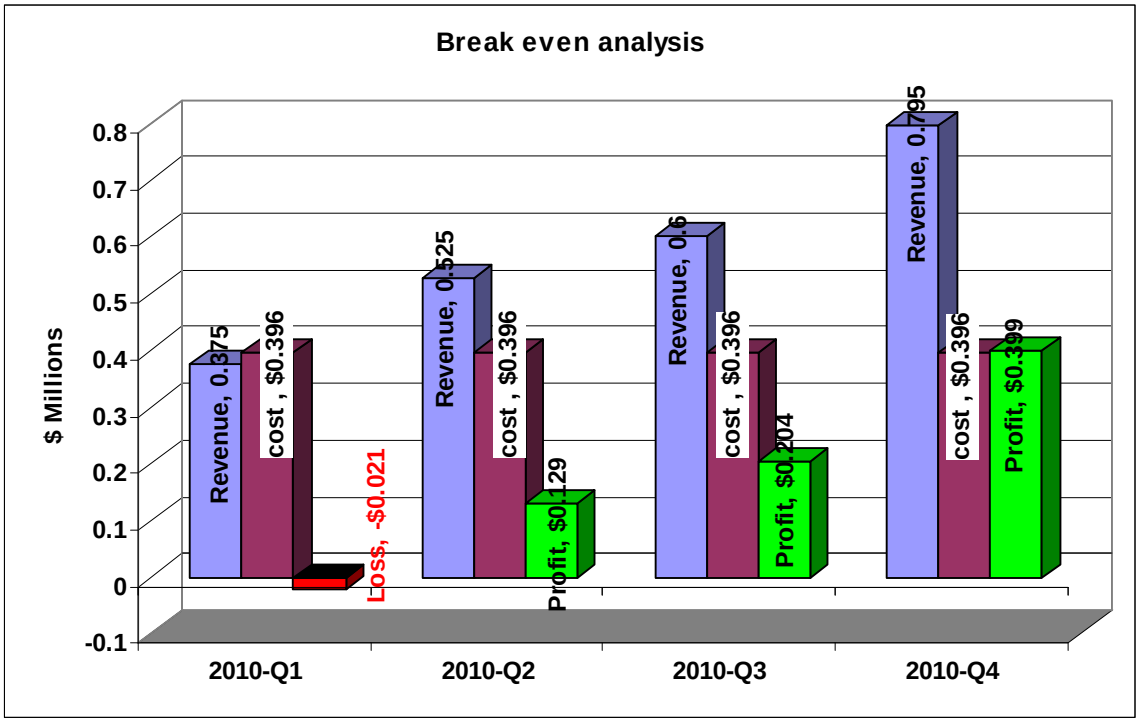


Figure 10: Breakeven Analysis 1st year- quarter by quarter

The profit will grow during the subsequent years after the breakeven. The chart below shows the expected profits up to the year 2014.

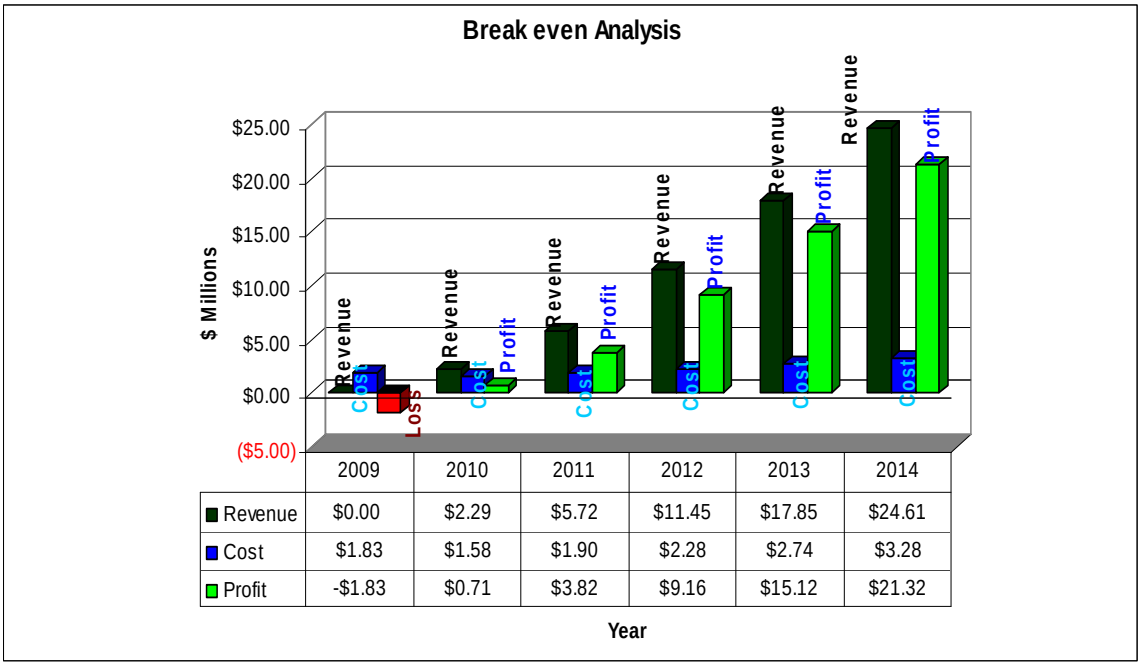


Figure 11: Breakeven analysis for Year-2009 to Year-2014

8.12.1.2 ROI

A company that develops and sells test automation software can expect huge return on investment. This is because a test automation business is a new idea and not many companies are doing business in this line. Further providing total testing solutions can attract many who are looking for comprehensive testing solution. The tables below show the potential sales and our ROI calculations for years 2009 to 2014.

#	Top 10 potential customers	# of Test Engineers	% of licenses projected from 2009 to 2014					
			0% in 2009	2% in 2010	5% in 2011	10% in 2012	15% in 2013	20% in 2014
1	Cisco	1500	0	30	75	150	225	300
2	Juniper	700	0	14	35	70	105	140
3	Nokia	1000	0	20	50	100	150	200
4	Alcatel Lucent	700	0	14	35	70	105	140
5	Motorola	1000	0	20	50	100	150	200
6	Qualcomm	1500	0	30	75	150	225	300
7	Ericsson	700	0	14	35	70	105	140
8	Samsung	400	0	8	20	40	60	80
10	Ciena	100	0	2	5	10	15	20
11	Tellabs	30	0	1	2	3	5	6
	Total	**7630**	**0**	**153**	**382**	**763**	**1145**	**1526**
	Number of engineers to be employed in our company during years 2009 to 2014		14	14	14	16	18	20

Table 18: Potential sales for years 2009 to 2014

	2009	2010	2011	2012	2013	2014
Projected # of licenses	0	153	382	763	1145	1526
Revenue	$0.00	$2.29	$5.72	$11.45	$17.85	$24.61
Cost	$1.83	$1.58	$1.90	$2.28	$2.74	$3.28
Profit (Benefit)	-$1.83	$0.71	$3.82	$9.16	$15.12	$21.32
ROI = (Benefit – cost)/cost	**-200.00%**	**-55.49%**	**101.06%**	**301.76%**	**425.29%**	**549.16%**

Table 19: ROI calculations for years 2009 to 2014

The above calculation shows that the cost for sustaining after the second year of operation will increase in proportion to the market share. It is assumed that a maximum of 20% increase in cost in forthcoming years. From year 2010, the cost for hardware/software is eliminated since the same items are reutilized. Only the salary and overhead expenses are accounted and estimated to be $1.58 million. Accordingly the cost is increasing up to $3.28 million in the year 2014, from $.1.829 million during the first year. The calculations for ROI show that the development of test automation software has a potential growth of up to 549.16% in a five year period after development.

8.13 Strategic Alliance/Partners

There is a potential to form strategic partnership and alliance with existing customers. We can also establish relationship with companies like IBM, Mercury, Borland, and Segue to bundle our networking automation framework with their existing products. For example, we can bundle our framework with Silk test, Aptest, and Rational tools.

8.14 Profit and Loss

Our estimates show that during the first year 153 licenses will be sold and the number increases year by year to reach up to 1526 licenses by 2014. The associated profit goes up from $0.71 million during 2010 to $21.32 million by 2014. Figure 10 shows the forecasted profit and loss from year 2009 to 2014.

8.14.1 Norden-Rayleigh graph

The Computations and Rayleigh graph for cumulative funding required with a shape parameter a = 0.0112 is shown below. The graph shows with a value for a=0.0112, about $1.83 million initial funding will be utilized during the first 9 months of the project. The first driver that led to use a value of a= 0.0112 is that a cash flow only $1.83 million is available during the initial 9 months development period. The second driver fro using a=0.0112 is that a total cash of $3.4 million is available within a period of 18 months prior to the break even period. As estimated, we plan to finish the prototype development to be over during the initial 9 months period, meaning we are right on the schedule. With proven results from the prototype development, the next series of funding for the remaining $1.54 million will allow us to reach until the breakeven. The value for a = 0.0112 seems optimal for us since the curve shows we are neither ahead of the cost profile nor behind the time schedule.

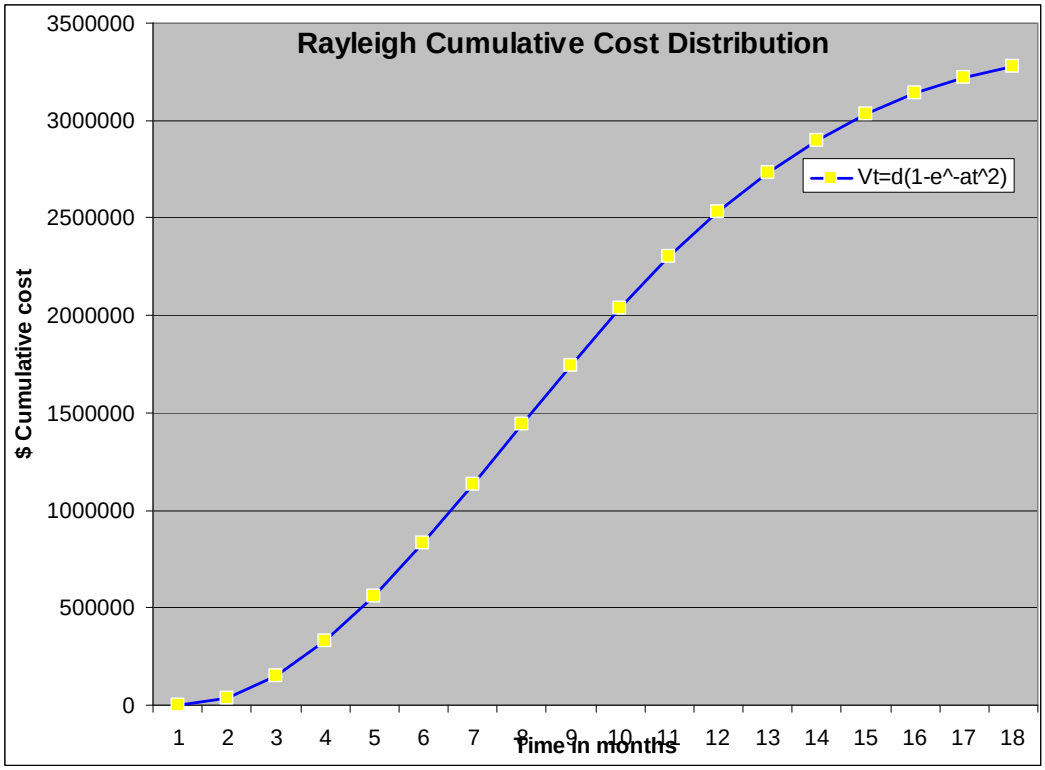


Figure 7: Rayleigh Cumulative Cost Distribution

The table shows the probability density function for the Rayleigh based financial profile for our test automation development project.

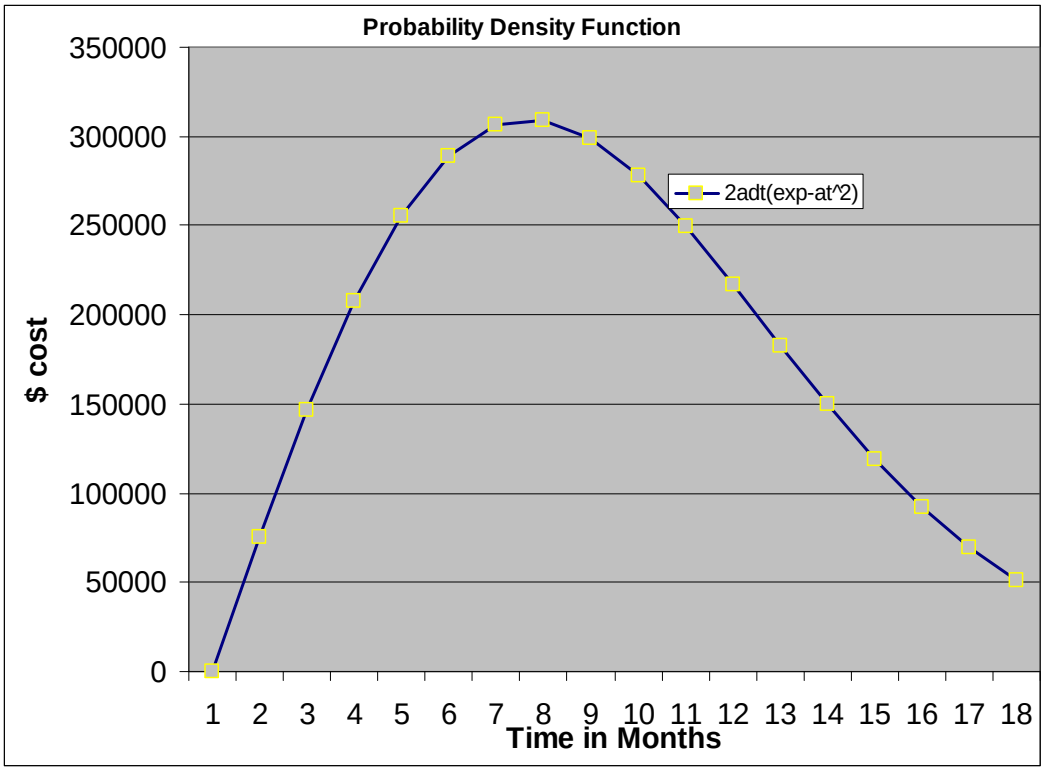


Figure 8: Probability density function

8.14.2 Financial Statements

The sections below show projected financial statements.

8.14.2.1 Balance Sheet

All numbers in $1000

Year	2009	2010	2011	2012	2013	2014
Cash	3500	1170	771	2566	6757	14463
Inventory	0	0	158	190	228	274
Accounts receivable	0	0	275	686	1374	2142
Total current assets	3500	1170	1204	3442	8359	16879
Gross property, plant & equipment	400	500	600	700	800	900
Less accumulated depreciation	0	-100	-200	-300	-400	-500
Net property, plant & equipment	400	400	400	400	400	400
Total assets	3900	1570	1604	3842	8759	17279
Accounts payable	0	0	126	152	182	219
Bank notes payable	0	0	0	0	0	0
Total current liabilities	0	0	126	152	182	219
Long-term debt	3500	3000	2500	2000	1500	1000
Shareholders' equity	0	-1830	-1423	1290	6677	15660
Total long-term debt and shareholders' equity	3500	1170	1078	3290	8177	16660
Total liabilities	3500	1170	1204	3442	8359	16879

Table 20: Balance Sheet Calculation
(Source: www.exinfm.com)

8.14.2.2 Profit and Loss Statements

All numbers in $1000

Year	2009	2010	2011	2012	2013	2014
Sales	0	2,290	5,720	11,450	17,850	24,610
Less COGS	-1,830	-1,580	-1,900	-2,280	-2,740	-3,280
Gross profit	-1,830	710	3,820	9,170	15,110	21,330
Less SG&A expenses	0	0	0	0	0	0
Less depreciation	0	0	0	0	0	0
Earnings before interest and taxes	-1,830	710	3,820	9,170	15,110	21,330
Less interest expense	0	-303	-248	-193	-138	-83
Pre-tax income	-1,830	408	3,573	8,978	14,973	21,248
Cumulative pre-tax income (NOL)	-1,830	-1,423	2,150	11,128	26,100	47,348
Taxes	0	0	860	3,591	5,989	8,499
Pre-tax income	-1,830	408	3,573	8,978	14,973	21,248
Less taxes	0	0	-860	-3,591	5,989	-8,499
Net income	-1,830	408	2,713	5,387	8,984	12,749

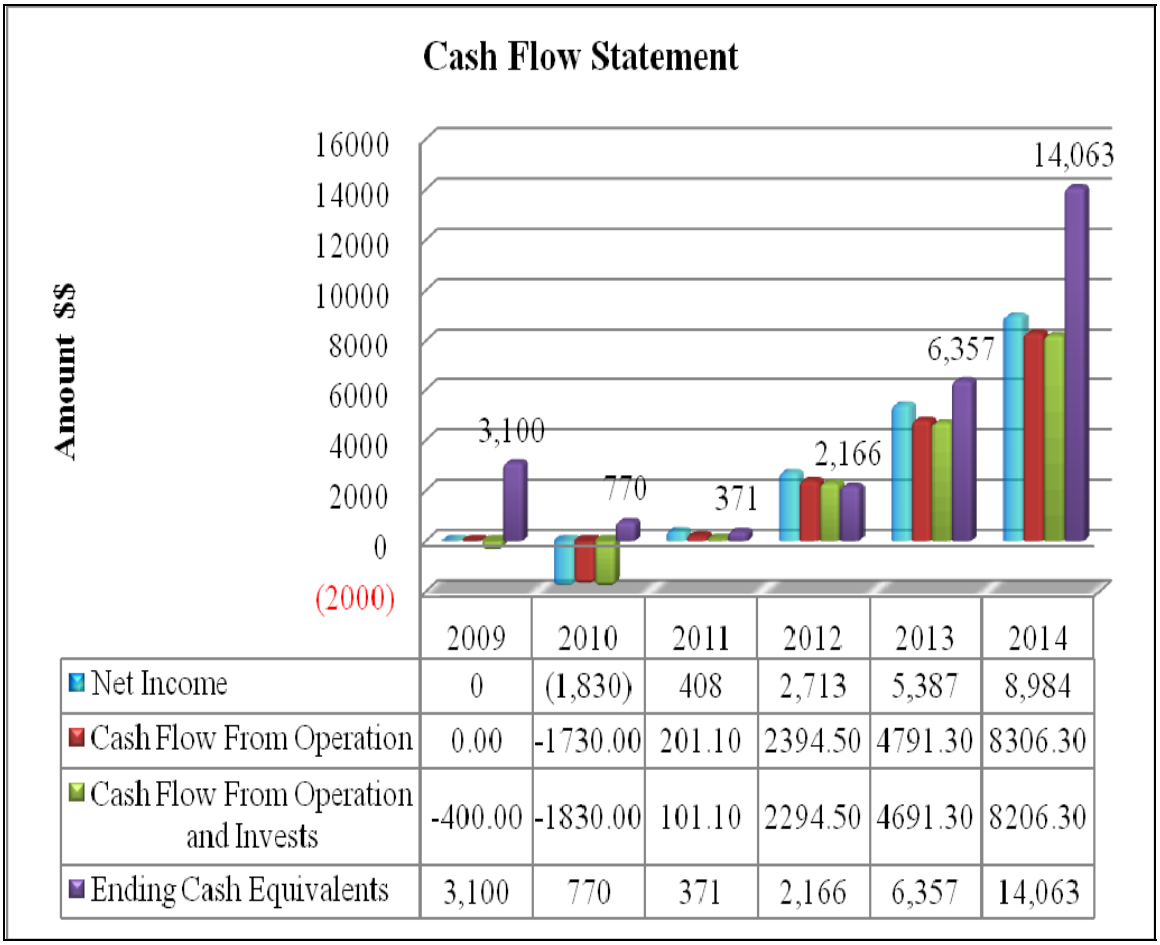
Table 21: Profit and Loss Calculation
(Source: www.exinfm.com)

8.14.2.3 Cash Flow Statement

All numbers in $1000

Year	2009	2010	2011	2012	2013	2014
Net income	0	-1,830	408	2,713	5,387	8,984
Plus depreciation	0	100	100	100	100	100
Less increase in inventory	0	0	-158	-32	-38	-46
Less increase in accounts receivable	0	0	-275	-412	-688	-768
Plus increase in accounts payable	0	0	126	26	30	37
Cash flow from operations	0	-1,730	201	2,395	4,791	8,306
Less investment	-400	-100	-100	-100	-100	-100
Cash flow from operations and invests	-400	-1,830	101	2,295	4,691	8,206
Plus net new equity capital raised	0	0	0	0	0	0
Less dividends paid	0	0	0	0	0	0
Plus net new long-term debt	3,500	-500	-500	-500	-500	-500
Plus net new bank borrowings	0	0	0	0	0	0
Cash flow from ops, invests, and finance	3,100	-2,330	-399	1,795	4,191	7,706
Beginning cash balance	0	3,100	770	371	2,166	6,357
Ending cash balance	3,100	770	371	2,166	6,357	14,063

Table 22: Cash Flow Statement
(Source: www.exinfm.com)



	2009	2010	2011	2012	2013	2014
Net Income	0	(1,830)	408	2,713	5,387	8,984
Cash Flow From Operation	0.00	-1730.00	201.10	2394.50	4791.30	8306.30
Cash Flow From Operation and Invests	-400.00	-1830.00	101.10	2294.50	4691.30	8206.30
Ending Cash Equivalents	3,100	770	371	2,166	6,357	14,063

Figure 12: Cash Flow Chart

8.15 Exit Strategy

The initial investment in our company is $3.413 million and the profit grows up to more than $20 million in five years of operation. If we decide to sell the company in 10 years, we will sell it for $300 million. The target companies that can buy or acquire our company are Borland, HP, IBM, Cisco, Juniper, and Samsung.

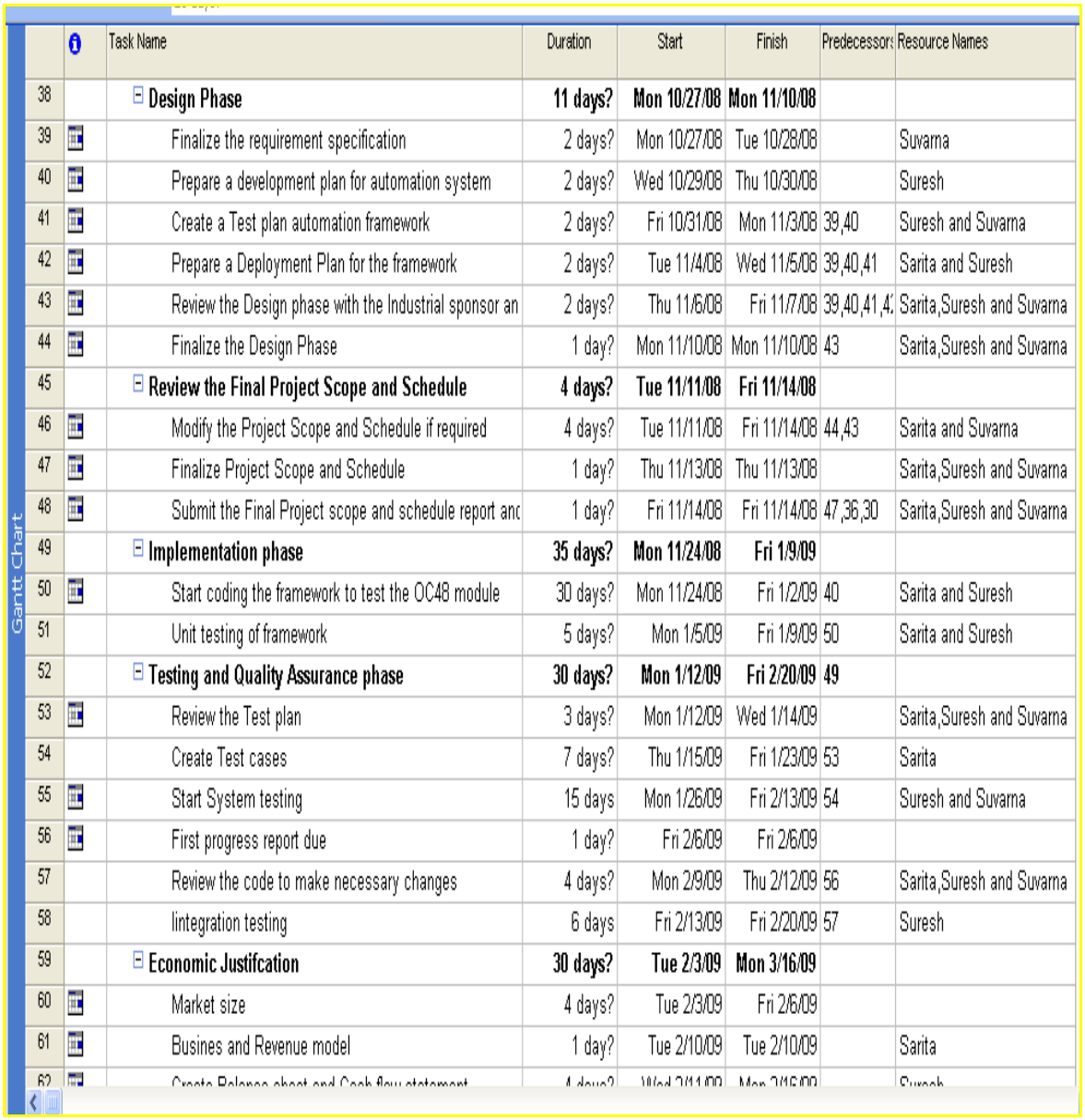
8.16 Project Schedule

The sections 8.18.1 to 8.18.3 below show the Gantt chart, critical tasks, and milestone activities for the test automation development.

8.16.1 Gantt chart

	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1	**Automation testing to improve the Productivity**	**156 days?**	**Fri 8/29/08**	**Fri 4/3/09**		**Sarita,Suresh,Suvarna**
2	**Objective**	**4 days?**	**Fri 8/29/08**	**Wed 9/3/08**		
3	**Selection of Topic**	**4 days?**	**Fri 8/29/08**	**Wed 9/3/08**		
7	**Planning**	**21 days?**	**Fri 8/29/08**	**Fri 9/26/08**		
8	**Team Formation**	**11 days?**	**Fri 8/29/08**	**Fri 9/12/08**		
14	**Define the scope of the project**	**10 days?**	**Mon 9/15/08**	**Fri 9/26/08**		
20	**Define the Project schedule**	**9 days?**	**Mon 9/15/08**	**Thu 9/25/08**		
24	Submit Project Schedule report and Presentation	1 day?	Fri 9/26/08	Fri 9/26/08		Sarita,Suresh and Suvarna
25	**Literature Review**	**10 days?**	**Mon 9/29/08**	**Fri 10/10/08**		
26	Research coding language\(tcl/tck, Perl, java)	5 days?	Mon 9/29/08	Fri 10/3/08	23	Sarita and Suvarna
27	Research and study similar system(existing)	5 days?	Mon 9/29/08	Fri 10/3/08	23	Suresh
28	Research on automation testing methodology	5 days?	Mon 9/29/08	Fri 10/3/08	23	Sarita,Suresh and Suvarna
29	Initial draft of Literature Review report	2 days?	Mon 10/6/08	Tue 10/7/08	28,26,27,2	Sarita,Suresh and Suvarna
30	Final draft of Literature Review report	2 days?	Wed 10/8/08	Thu 10/9/08	29	Sarita,Suresh and Suvarna
31	Submit Literature Review report and presentation	1 day?	Fri 10/10/08	Fri 10/10/08	30	Sarita,Suresh and Suvarna
32	**Economic Analysis**	**10 days?**	**Mon 10/13/08**	**Fri 10/24/08**		
33	Cost Analysis of the project	4 days?	Mon 10/13/08	Thu 10/16/08	18,23,31	Sarita and Suvarna
34	Review with technical sponsor	2 days?	Fri 10/17/08	Mon 10/20/08	33	Suresh
35	Make the necessary changes to the project	2 days?	Tue 10/21/08	Wed 10/22/08	34	Sarita
36	Finalize the Economic Analysis report and presentation	1 day?	Thu 10/23/08	Thu 10/23/08	34,35	Sarita,Suresh and Suvarna
37	Submit the presentation and Economic Analysis report	1 day?	Fri 10/24/08	Fri 10/24/08	36	Sarita,Suresh and Suvarna
38	**Design Phase**	**11 days?**	**Mon 10/27/08**	**Mon 11/10/08**		
39	Finalize the requirement specification	2 days?	Mon 10/27/08	Tue 10/28/08		Suvarna
40	Prepare a development plan for automation system	2 days?	Wed 10/29/08	Thu 10/30/08		Suresh
41	Create a Test plan automation framework	2 days?	Fri 10/31/08	Mon 11/3/08	39,40	Suresh and Suvarna

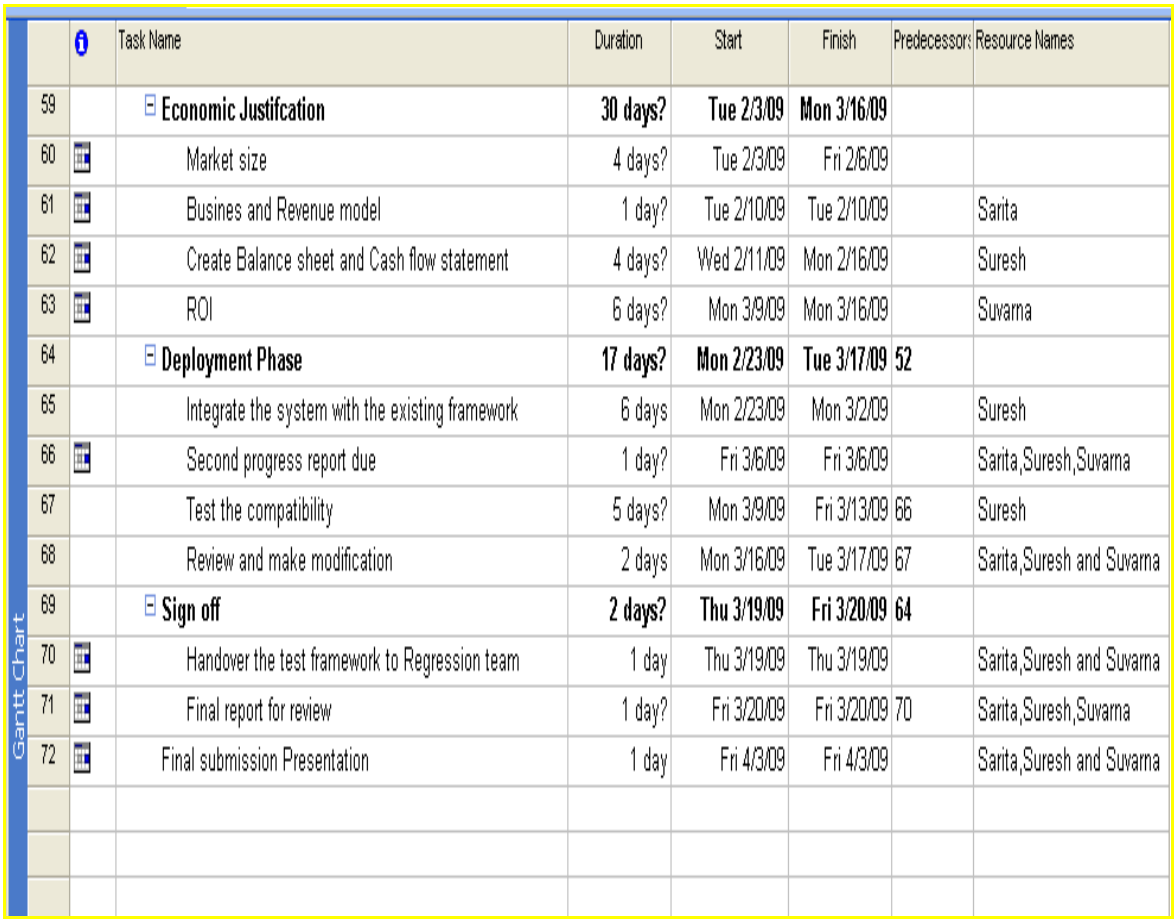
Figure 13: Gantt chart 1



	Task Name	Duration	Start	Finish	Predecessors	Resource Names
38	**Design Phase**	**11 days?**	**Mon 10/27/08**	**Mon 11/10/08**		
39	Finalize the requirement specification	2 days?	Mon 10/27/08	Tue 10/28/08		Suvarna
40	Prepare a development plan for automation system	2 days?	Wed 10/29/08	Thu 10/30/08		Suresh
41	Create a Test plan automation framework	2 days?	Fri 10/31/08	Mon 11/3/08	39,40	Suresh and Suvarna
42	Prepare a Deployment Plan for the framework	2 days?	Tue 11/4/08	Wed 11/5/08	39,40,41	Sarita and Suresh
43	Review the Design phase with the Industrial sponsor an	2 days?	Thu 11/6/08	Fri 11/7/08	39,40,41,4	Sarita,Suresh and Suvarna
44	Finalize the Design Phase	1 day?	Mon 11/10/08	Mon 11/10/08	43	Sarita,Suresh and Suvarna
45	**Review the Final Project Scope and Schedule**	**4 days?**	**Tue 11/11/08**	**Fri 11/14/08**		
46	Modify the Project Scope and Schedule if required	4 days?	Tue 11/11/08	Fri 11/14/08	44,43	Sarita and Suvarna
47	Finalize Project Scope and Schedule	1 day?	Thu 11/13/08	Thu 11/13/08		Sarita,Suresh and Suvarna
48	Submit the Final Project scope and schedule report and	1 day?	Fri 11/14/08	Fri 11/14/08	47,36,30	Sarita,Suresh and Suvarna
49	**Implementation phase**	**35 days?**	**Mon 11/24/08**	**Fri 1/9/09**		
50	Start coding the framework to test the OC48 module	30 days?	Mon 11/24/08	Fri 1/2/09	40	Sarita and Suresh
51	Unit testing of framework	5 days?	Mon 1/5/09	Fri 1/9/09	50	Sarita and Suresh
52	**Testing and Quality Assurance phase**	**30 days?**	**Mon 1/12/09**	**Fri 2/20/09**	**49**	
53	Review the Test plan	3 days?	Mon 1/12/09	Wed 1/14/09		Sarita,Suresh and Suvarna
54	Create Test cases	7 days?	Thu 1/15/09	Fri 1/23/09	53	Sarita
55	Start System testing	15 days	Mon 1/26/09	Fri 2/13/09	54	Suresh and Suvarna
56	First progress report due	1 day?	Fri 2/6/09	Fri 2/6/09		
57	Review the code to make necessary changes	4 days?	Mon 2/9/09	Thu 2/12/09	56	Sarita,Suresh and Suvarna
58	Iintegration testing	6 days	Fri 2/13/09	Fri 2/20/09	57	Suresh
59	**Economic Justifcation**	**30 days?**	**Tue 2/3/09**	**Mon 3/16/09**		
60	Market size	4 days?	Tue 2/3/09	Fri 2/6/09		
61	Busines and Revenue model	1 day?	Tue 2/10/09	Tue 2/10/09		Sarita
62	Create Balance sheet and Cash flow statement	4 days?	Wed 2/11/09	Mon 2/16/09		Suresh

Gantt Chart

Figure 14: Gantt chart 2



	Task Name	Duration	Start	Finish	Predecessors	Resource Names
59	**Economic Justifcation**	**30 days?**	**Tue 2/3/09**	**Mon 3/16/09**		
60	Market size	4 days?	Tue 2/3/09	Fri 2/6/09		
61	Busines and Revenue model	1 day?	Tue 2/10/09	Tue 2/10/09		Sarita
62	Create Balance sheet and Cash flow statement	4 days?	Wed 2/11/09	Mon 2/16/09		Suresh
63	ROI	6 days?	Mon 3/9/09	Mon 3/16/09		Suvarna
64	**Deployment Phase**	**17 days?**	**Mon 2/23/09**	**Tue 3/17/09**	**52**	
65	Integrate the system with the existing framework	6 days	Mon 2/23/09	Mon 3/2/09		Suresh
66	Second progress report due	1 day?	Fri 3/6/09	Fri 3/6/09		Sarita,Suresh,Suvarna
67	Test the compatibility	5 days?	Mon 3/9/09	Fri 3/13/09	66	Suresh
68	Review and make modification	2 days	Mon 3/16/09	Tue 3/17/09	67	Sarita,Suresh and Suvarna
69	**Sign off**	**2 days?**	**Thu 3/19/09**	**Fri 3/20/09**	**64**	
70	Handover the test framework to Regression team	1 day	Thu 3/19/09	Thu 3/19/09		Sarita,Suresh and Suvarna
71	Final report for review	1 day?	Fri 3/20/09	Fri 3/20/09	70	Sarita,Suresh,Suvarna
72	Final submission Presentation	1 day	Fri 4/3/09	Fri 4/3/09		Sarita,Suresh and Suvarna

Gantt Chart

Figure 15: Gantt chart 3

8.16.2 Critical tasks

ID	Task Name	Start	Finish
1	Automation testing to improve the Productivity	Fri 8/29/08	Fri 4/3/09
2	Objective	Fri 8/29/08	Wed 9/3/08
3	Selection of Topic	Fri 8/29/08	Wed 9/3/08
7	Planning	Fri 8/29/08	Fri 9/26/08
8	Team Formation	Fri 8/29/08	Fri 9/12/08
14	Define the scope of the project	Mon 9/15/08	Fri 9/26/08
24	Submit Project Schedule report and Presentation	Fri 9/26/08	Fri 9/26/08
25	Literature Review	Mon 9/29/08	Fri 10/10/08
26	Research coding language\(tcl/tck, Perl, java)	Mon 9/29/08	Fri 10/3/08
	ID: 29 — Successor Name: Initial draft of Literature Review report — Type: FS — Lag: 0 days		
27	Research and study similar system(existing)	Mon 9/29/08	Fri 10/3/08
	ID: 29 — Successor Name: Initial draft of Literature Review report — Type: FS — Lag: 0 days		
28	Research on automation testing methodology	Mon 9/29/08	Fri 10/3/08
	ID: 29 — Successor Name: Initial draft of Literature Review report — Type: FS — Lag: 0 days		
29	Initial draft of Literature Review report	Mon 10/6/08	Tue 10/7/08
	ID: 30 — Successor Name: Final draft of Literature Review report — Type: FS — Lag: 0 days		
30	Final draft of Literature Review report	Wed 10/8/08	Thu 10/9/08
	ID: 31 — Successor Name: Submit Literature Review report and presentation — Type: FS — Lag: 0 days		
	ID: 48 — Successor Name: Submit the Final Project scope and schedule report and presentation — Type: FS — Lag: 0 days		
31	Submit Literature Review report and presentation	Fri 10/10/08	Fri 10/10/08
	ID: 33 — Successor Name: Cost Analysis of the project — Type: FS — Lag: 0 days		
32	Economic Analysis	Mon 10/13/08	Fri 10/24/08
33	Cost Analysis of the project	Mon 10/13/08	Thu 10/16/08
	ID: 34 — Successor Name: Review with technical sponsor — Type: FS — Lag: 0 days		
34	Review with technical sponsor	Fri 10/17/08	Mon 10/20/08

Figure 16: Critical task 1

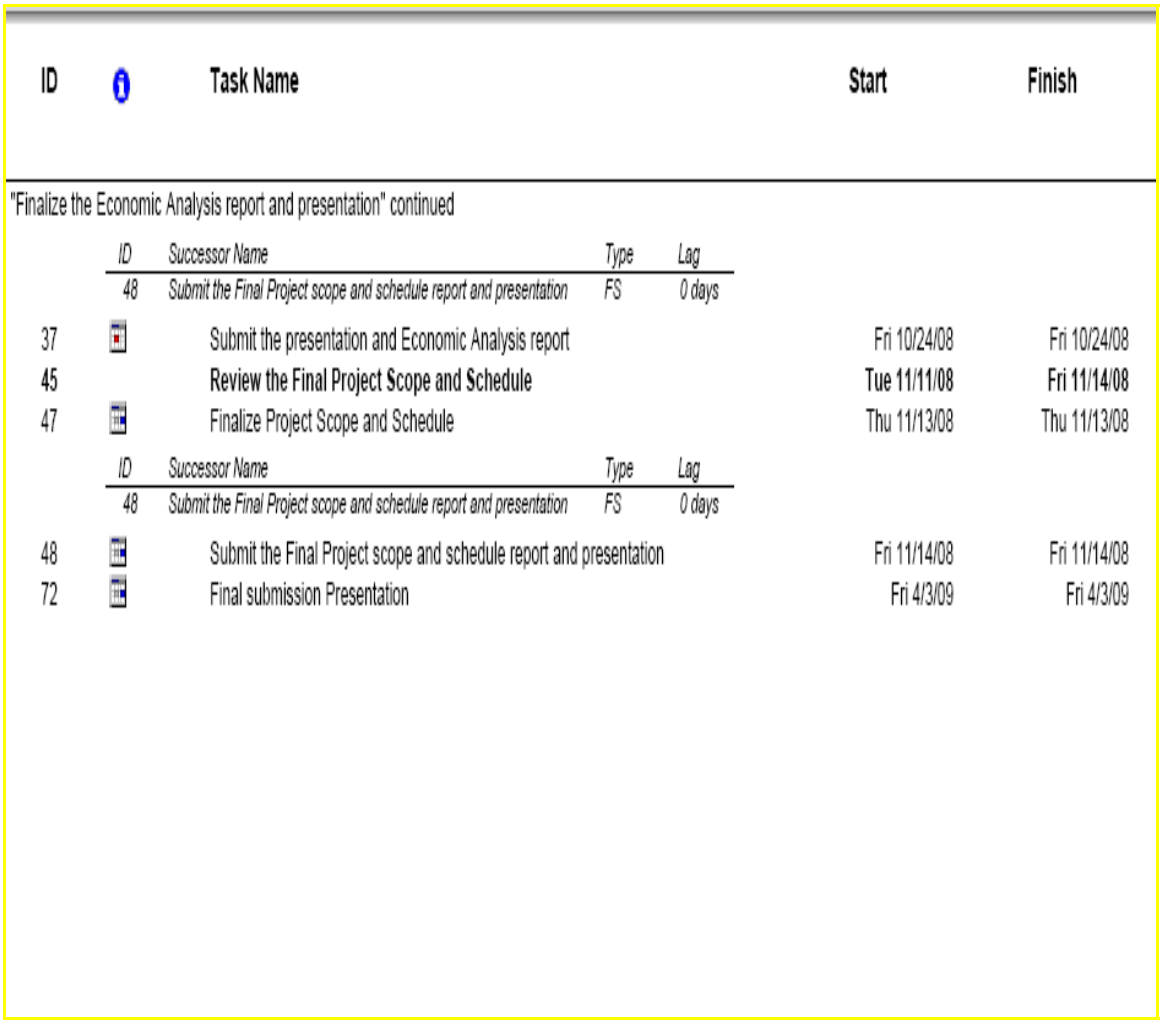


Figure 17: Critical task 2

8.16.3 Milestone tasks

ID	Task Name	Duration	Start
1	Automation testing to improve the Productivity	156 days?	Fri 8/29/08
2	Objective	4 days?	Fri 8/29/08
3	Selection of Topic	4 days?	Fri 8/29/08
7	Planning	21 days?	Fri 8/29/08
8	Team Formation	11 days?	Fri 8/29/08
14	Define the scope of the project	10 days?	Mon 9/15/08
20	Define the Project schedule	9 days?	Mon 9/15/08
24	Submit Project Schedule report and Presentation	1 day?	Fri 9/26/08
25	Literature Review	10 days?	Mon 9/29/08
30	Final draft of Literature Review report	2 days?	Wed 10/8/08
32	Economic Analysis	10 days?	Mon 10/13/08
35	Make the necessary changes to the project	2 days?	Tue 10/21/08
45	Review the Final Project Scope and Schedule	4 days?	Tue 11/11/08
48	Submit the Final Project scope and schedule report and presentation	1 day?	Fri 11/14/08
59	Economic Justifcation	30 days?	Tue 2/3/09
64	Deployment Phase	17 days?	Mon 2/23/09
66	Second progress report due	1 day?	Fri 3/6/09
63	ROI	6 days?	Mon 3/9/09
69	Sign off	2 days?	Thu 3/19/09
71	Final report for review	1 day?	Fri 3/20/09

Figure 18: Milestone tasks

9 Conclusion

The test automation framework developed by us as part of our Master's project has significantly improved the testing efficiency and reduced the test cycle time for our industrial sponsor Tellabs 8800 series router. Further, the generalized test architecture approach that we implemented will help the entire telecom industry in reducing the testing costs and improving the productivity. This report also details the economic justification of developing and pursuing a test automation project. The analysis on the market potential demonstrates that ROI as high as 550% from test automation within a span of five years period. Study on market potential, competitors and the potential customers ensure that the developed product has major differentiation from the competitor's product and is highly appealing to our potential customers.

10 Tools and Resources

The test automation project identified in this report required the following resources.

1. **Tellabs 8800 series router** (a telecom network element): This router was the unit under test, as a part of this project. The test automation scripts validated whether router is functioning as expected for particular features.

2. **UNIX server**: The server used to run TCL and shell scripts.

3**. UNIX operating system**: UNIX operating system runs on the servers.

4. **Telnet client**: The telnet client such as putty or TeraTerm for opening telnet session to the UNIX server and Tellabs 8800 series router

5. **TCL interpreter & libraries**: Multiple scripts for common functions stored in TCL libraries.

6. **Test Scripts**: Scripts to run automated testing for selected feature testing

7. **Martin Luther King library**: Journals, books and online databases from Martin Luther King Library provided material for literature survey.

8**. Internet**: The websites such as Yahoo, Google, and Wikipedia were key source for economic survey and analysis.

9. **Engr-298** Class material for economic justification and other guidelines

11 Glossary of Terms

ALM	Application life cycle Management
ATM	Asynchronous Transfer Mode
CLI	Command Line Interface
DUT	Device under test
FR	Frame Relay
FRD	Feature requirement document
HW	Hardware
IDC	International Data Corporation
IP	Internet Protocol
LAN	Local Area Network
MPLS	Multiprotocol Label Switching
MSR	Multi Services Router
OSI	Open Systems Interface
PRD	Product Requirement document
QA	Quality Assurance
QoS	Quality of Service
ROI	Return on Investment
SW	Software
TCL	Tool Command Language
VOIP	Voice over IP
WiMAX	Worldwide Interoperability for Microwave Access

12 Team and Committee

Faculty Reader:

Dr. Jim Dorosti: "Dr. Dorosti is the Director of MSE Programs, College of Engineering at San Jose State University where he also teaches engineering courses in the MSE program and mentors young engineering students. He serves on the following committees: MSE Steering; College of Engineering Curriculum; High Tech Management; and Entrepreneurship Excellence. Jim has extensive experience with Fortune 500 and start-up businesses in the semiconductor industry, and a unique record in managing both technical organizations as well as Corporate Total Quality Management Systems (TQMS)." (San Jose State University, 2008)

Industrial Sponsor:

Mr. Surya Rao: Mr. Rao is a Senior Manager at Tellabs and he has over 16 years of industrial experience. At Tellabs, he is leading an aggressive team of engineers who are involved in the development of next generation router products. Prior to his job at Tellabs, he has managed development teams in many top-notch companies such as Motorola, Fujitsu and CMC India. Mr. Rao is a champion of automation testing implementations and designed many automation schemes in the above companies.

Team members:

Suresh Babu Thuravupala: Suresh Babu Thuravupala is a full time graduate student at San Jose State University. He has many years of experience on telecom and networking products from companies such as Tellabs, Cisco, Nokia, Verilink, Ciena, TATA (India), HCL Comnet (India) and Indian Telephone Industries (India). With his many years of experience in testing and software development, he will bring in a rich expertise and will play a very important role in developing, testing and implementing the Automation test tool planned for this project.

Sarita Agrawal: Sarita Agrawal is a full time student at San Jose State University and an IT Analyst Intern at Cisco Systems, Inc. With 3 years of industry experience as a software developer and Quality Assurance Engineer, she will play an important role in defining the scope and timely completion of the project.

Suvarna Khadke: Suvarna Khadke is a full time student at San Jose State University. She has hands on experience in software testing and various programming languages. She will help in designing the front end user interface tool and in completing the project in time.

13 References

Agitar Agitator 3.0, 2005., Improving Effectiveness of Automated Software Testing in the Absence of Specifications retrieved October 4, 2008 from http://ieeexplore.ieee.org.libaccess.sjlibrary.org

Andrews, D. M. & Benson, J. P., 1981., An automated program testing methodology and its implementation, ICSE '81: Proceedings of the 5th international conference on Software engineering, p. 254 – 261, 1981, San Diego, California, United States.

Beizer, Boris, *Software Testing Techniques*, 2nd Edition, New York, Van Nostrand Reinhold, 1990.

Beizer, Boris, *Software System Testing and Quality Assurance*, New York, Van Nostrand Reinhold, 1984.

Bertolino, A., Software Testing Research: Achievements, Challenges, Dreams, Journal on Future of Software Engineering (FOSE'07), IEEE computer society, p. 85-103, 2007, Washington, DC, USA

Borland to Acquire Software Quality Company, Segue Software, 2008., Retrieved September29, 2008 from: http://www.borland.com/us/company/news/press_releases/2006/02_08_06_borland_acquires_segue_software.html

Break Even Analysis, 2008., retrieved on October 24, 2008 from: http://portal.acm.org.libaccess.sjlibrary.org/citation.cfm

Carl,M.(1998). Automating the Testing of Networking Equipment Designs. CSD Magazine. Retrieved on September 13, 2008, from http://www.commsdesign.com/main/9806fe4.htm

Center for Information- Development Management, 2004., retrieved March 10, 2009 from: http://www.infomanagementcenter.com/enewsletter/200407/feature.htm

Cost Benefits Analysis of Test Automation, Retrieved October 9, 2008 from: http://www.softwarequalitymethods.com/Papers/Star99%20model%20Paper.pdf

Cost Benefits Analysis of Test Automation Industry Center – Application Software, Yahoo Finance, 2008., retrieved October 8, 2008 from: http://biz.yahoo.com/ic/821.html

Csallner. C., and Smaragdakis. Y., J. Crasher: an automatic robustness tester for Java. Software: Practice and Experience, 34:1025–1050, 2004.

Decasper. D., Parulkar. G., Choi. S., DeHart. J., Wolf. T., and Plattner. B., "A scalable high-performance active network node," in IEEE Network, Vol. 13, No. 1, January/February 1999.

Free Spreadsheets, Retrieved October 8, 2008 from www.exinfm.com

Financial Valuation Group, 2001, Retrieved October 8, 2008 from www.fvginternational.com

Heimdahl. M. P. E., George. D., Weber. R., "Specification Test Coverage Adequacy Criteria = Specification Test Generation Inadequacy Criteria?," High Assurance Systems Engineering, 2004. Proceedings. Eighth IEEE International Symposium on, pp 178-186, March 2004

Industry Center – Application Software, Yahoo Finance, 2008., retrieved October 8, 2008 from: http://biz.yahoo.com/ic/821.html

Lockwood. J. W., Neely. C., Zuver. C., Lim. D., "Automated Tools to Implement and Test Internet Systems in Reconfigurable Hardware," ACM SIGCOMM Computer Communication Review, Vol 33, pp 103-110, July 2003.

Liu. L., Zhou. X., Gu. J., & Yang. Z., "Agent-based automated compatibility software test for NLSF," Machine Learning and Cybernetics, 2003 International Conference on, Vol 4, pp 1986 – 1989, Nov 2003.

Mercury interactive, 2009. Retrieved on May 17, 2009 from: http://www.viswiki.com/en/Mercury_Interactive

Miller. E., "Advanced methods in automated software test," Software Maintenance," in Proceedings., Conference on, pp. 111, Nov 1990.

Nilsson. R., Automated Testing of Timeliness: A Case Study, *Journal on Second International Workshop on Automation of Software Test (AST'07), pp 11-11, 20-26 May, 2007*

Parasoft Jtest 4.5, 2003. http://www.parasoft.com/, Improving Effectiveness of Automated Software Testing in the Absence of Specifications retrieved on October 4, 2008, from: http://ieeexplore.ieee.org.libaccess.sjlibrary.org

Phyllis. F. G., "Assessing and enhancing software testing effectiveness" ACM SIGSOFT Software Engineering Notes archive, Vol 25, pp 50-51, 2000.

Raishe, T. (1999, June). BLACKBOX TESTING. Retrieved on September 20, 2008, from http://www.cse.fau.edu/~maria/COURSES/CEN4010-SE/C13/black.html

Rudolf, R. and Klaus, W., Economic Perspectives in Test Automation: Balancing automated and Manual Testing with Opportunity Cost Retrieved on September 20, 2008 from http://portal.acm.org.libaccess.sjlibrary.org/citation.cfm

Sampath. S., Mihaylov.V., A. Souter., & L. Pollock., Composing a framework to automate testing of operational Web-based software, Software Maintenance, 2004. Proceedings. 20th IEEE International Conference, pp 104-113, 11-14 Sept. 2004.

Salary wizard, 2008., retrieved on October 18, 2008 from: http://swz.salary.com/salarywizard/layoutscripts/swzl_selectjob.asp

San Jose State University 2008. Retrieved on September 20, 2008 from http://www.cob.sjsu.edu/svce/facstaff/dorosti_j.asp

Schroeder, P. J. & Korel, B., September 2000. Black-box test reduction using input output analysis, ACM SIGSOFT Software Engineering Notes, 25, 5.

Seo. J., Sung. A., Choi. B., & Kang. S., "Automating Embedded Software Testing on an Emulated Target Board," *Journal on Second International Workshop on Automation of Software Test (AST'07), pp 9-9, 2007* .

Sarita, A. (2007). Automation testing process, ENGR-200W literature review project report submitted to SJSU, November 1, 2007.

Suresh, T. (2008). Automation Testing for Telecom Systems, ENGR-200W Trial project report submitted to SJSU, April 21, 2008.

SWOT analysis, Retrieved on October 21, 2008 from http://www.businessballs.com/swotanalysisfreetemplate.htm

Tao. Z., Improving Effectiveness of Automated Software Testing in the Absence of Specifications, Software Maintenance, 2006. ICSM '06. 22nd IEEE International Conference, pp 355-359, Sept. 2006.

Tcl and the Tk Toolkit. Retrieved on September 13, 2008, from http://www.labcomp.inf.utfsm.cl/charlastecnicas/charlas2006/charla20060516/manual_tcl_tk.pdf

Tellabs (2009). Tellabs Products. Retrieved on September 20, 2008, from http://www.tellabs.com/products/8000/tellabs8860.shtml

Tennenhouse. D. L., et al., "A Survey of Active Network Research," in IEEE Communications Magazine, pp. 80–86, Jan. 1997.

Peter, P. J., & Donnelly J. H., *Marketing Management*, 8th Edition, Mc Graw-Hall, 2007.

Thuravupala.S, Agrawal S, Khadke S., Improving software testing efficiency using automation methods, ENGR-298 Literature Review report submitted to SJSU, October 10, 2008.

Velhal. R., *Architecting an Automation Test Harness for Pocket PC Devices*: *Intel developer update magazine.* Retrieved April 9, 2008, from Intel web site: http://www.intel.com/technology/magazine/communications/wi04031.pdf

Wind River (2009). Wind River Expands Presence in Test Automation Market for Device Software. Retrieved on February 18, 2009, from http://www.windriver.com/news/press/pr.html?ID=6181

Appendix-A

The following library files are used for performing automation testing on Tellabs 8800 series router. These library files act as common procedures and script files call them.

Module-1: Library Files

```
##########################################################################
```

Library File-1

```
#####################################################################
proc connect8800 { outVar host {username abcd} {password abcd.1} } {
      set prompt "(#) $"
      upvar $outVar out;
      set out(spawnID) 0
      set timeout 180
      spawn telnet $host
      set id $spawn_id
      puts "spawnID is $id"
      set out(spawnID)  $id
      expect "Login:"
      exp_send "rootxxxxx\r"
       expect "Password:"
      exp_send "xxxxroot.1\r"
      expect -re $prompt
set out(buff) "##### $expect_out(buffer) ###"
  sleep 2
}

##########################################################################
```

Library file-2

```
#####################################################################
proc issueCommand {outVar id cmd {params ""}} {
    upvar $outVar out
    #initOutVar out 1
    parseArgs args $params
    set hitenter 3; if [info exists args(hitenter)] {set hitenter
$args(hitenter)}
    set ctrlc 1; if [info exists args(ctrlc)] {set ctrl $args(ctrlc)}
    set time 10;
    set time 1
if [info exists args(time)] {set time $args(time)}
#    set prompt "(\[^\r]*)\r\n" ;
      set prompt "(#) $"
if [info exists args(prompt)] {set prompt $args(prompt)}
    set timeout $time
    set retries 0
    set out(output) ""
    if {![regexp {^ *$} $cmd]} {
        #if {[fork] == 0} {
         #   sleep $time
            #send -i $id "\03"
```

```
          #  exit
        #}
        set str [string trim $cmd]
        send -i $id "$str\r"
        expect {
            -i $id
            -re $prompt {
                append out(output) $expect_out(buffer)
                exp_continue
            }

            -re "(%|>|#|\\$) $" {
                set lines [split $out(output) \r\n]
                foreach l $lines {
                    if {[regexp "segmentation|core dump|bus
error|usage:|command not found" $l]} {
                        errMsg out $l
                    }
                }

            }
            full_buffer {
                  append out(output) $expect_out(buffer)
                    exp_continue
              }
        }
    }
}

#########################################################################
Library File-3
#########################################################################
proc issueCommandwithTout {outVar id delay cmd {params ""}} {
    upvar $outVar out
    #initOutVar out 1
    parseArgs args $params
    set hitenter 3; if [info exists args(hitenter)] {set hitenter
$args(hitenter)}
    set ctrlc 1; if [info exists args(ctrlc)] {set ctrl $args(ctrlc)}
    set time 10;
    set time 1
set timeout $delay
#set timeout -1
if [info exists args(time)] {set time $args(time)}
#    set prompt "(\[^\r]*)\r\n" ;
        set prompt "(#) $"
if [info exists args(prompt)] {set prompt $args(prompt)}
#    set timeout $time
    set retries 0
    set out(output) ""
    if {![regexp {^ *$} $cmd]} {
        #if {[fork] == 0} {
         #   sleep $time
            #send -i $id "\03"
```

```
          #  exit
        #}
        set str [string trim $cmd]
        send -i $id "$str\r"
#set timeout -1
        expect {
            -i $id
            -re $prompt {
                append out(output) $expect_out(buffer)
                exp_continue
            }
       timeout { puts
"############################TIMEOUTOCCURED################"}

            -re "(%|>|#|\\$) $" {
                set lines [split $out(output) \r\n]
                foreach l $lines {
                    if {[regexp "segmentation|core dump|bus
error|usage:|command not foun
d" $l]} {
                        errMsg out $l
                    }
                }

            }
            full_buffer {

 append out(output) $expect_out(buffer)
                        exp_continue
                }
        }
    }
}

#########################################################################
Library File-4
#########################################################################
proc issueCommand1 {outVar id tout cmd  {params ""}} {
set timeout $tout
    upvar $outVar out
    set out(output) ""
set moreString ""
set prompt "(#|>|%|\\$) $"
send -i $id "$cmd \r"
expect {
        -i $id
        -re  (.*)(--More--|$prompt)  {puts "--More-- OR prompt got"
        #-re  "(.*)# $"  puts "more got"
        #-re  (.*)($prompt)  puts "more got"
        #-re  (.*)  puts "more got"
append out(output) $expect_out(buffer) } }
puts "expect_out(1,string) is $expect_out(1,string)"
puts "expect_out(2,string) is $expect_out(2,string)"
#if {[string match --More-- $expect_out(2,string)]}
```

```
while {[string match --More-- $expect_out(2,string)]} {
set expect_out(2,string) ""
send -i $id "\\x20 \r"
expect {
        -i $id
        -re  (.*)(--More--|$prompt) { puts "more got"
append out(output) $expect_out(1,string) } }
#append out(output) $expect_out(buffer)
puts "expect_out(1,string) is $expect_out(1,string)"
puts "expect_out(2,string) is $expect_out(2,string)"

} ; #end of if
} ; #end of proc

##########################################################################
```
Library File-5
```
##########################################################################

proc parseArgs {outVar actualArgs} {
      upvar $outVar out;
# initOutVar out

      set totalArgs [llength $actualArgs]
      set i -1

      while {$i < ($totalArgs - 1)} {
          incr i
          set argValue [lindex $actualArgs $i]
          # letters, digits, underscore and dashes
          set result [regexp -nocase {(^\-)([A-Za-z0-9_-]+)} $argValue
b c actValue]
          if  {$result} {
            incr i
            # replaces the value of argName to NULL if nothing exists
            if {[regexp -nocase {(^\-)([A-Za-z0-9_-]+)} [lindex
$actualArgs $i] ]} {
                set out($actValue) ""
                incr i -1
            } else {
                set out($actValue) [lindex $actualArgs $i]
            }
          } else  {
            errMsg out "parseArgs : Illegal argument name <$argValue>.
$actualArgs"
            return
          }
      }
    } ; # end of parseArgs procedure
##########################################################################
```
Library File -6
```
##########################################################################

proc enableAdminMultiVTs {outVar id startVTG endVTG startVT endVT} {
    upvar $outVar out
```

```
for {set VTGcount $startVTG} {$VTGcount <= $endVTG} {incr VTGcount} {
for {set VTCount $startVT} {$VTCount <= $endVT} {incr VTCount} {

#puts "VT-$VTGcount-$VTCount"
issueCommand out $id "vt-options $VTGcount/$VTCount admin enable"
#issueCommand out $id "exit"
}
}
}
##########################################################################
Library File-7
##########################################################################
`
proc enableAdminMultiDS1s {outVar id startVTG endVTG startVT endVT} {
    upvar $outVar out
for {set VTGcount $startVTG} {$VTGcount <= $endVTG} {incr VTGcount} {
for {set VTCount $startVT} {$VTCount <= $endVT} {incr VTCount} {

#puts "VT-$VTGcount-$VTCount"
issueCommand out $id "ds1-options $VTGcount/$VTCount admin enable"
#issueCommand out $id "enable config equip channel ds1-options
$VTGcount/$VTCount admin enable"
#issueCommand out $id "exit"
}
}
}
##########################################################################
```

Module-2: Script files

The following TCL/EXPECT script file was developed as part of this automation testing project for generating 2000 IP interfaces on Tellabs 8800

#name Create2000_IPint.exp

```
##########################################################################
#!/bin/sh
#package require Expect
set starter { $*
shift 2
}
source //home/sthuravu/myPrograms/SurTlab_Routerlib.tcl
##########################################################################
#8800 Automation scripts to create up to 2000 (bundles,ATM L2,L3
IP)subinterfaces
#Usage: ./program name , example "./2000ATMandIPint.exp"
#CAUTION:-This program will erase existing configuration and create
2000 Bundles, 2000 L2 ATM UNI interfaces and 2000 L3 IP sub interfaces
on the router specified by the IP address
##########################################################################
set slots { 9 } ; # specify the slot on which interfaces to be created
##########################################################################
set prompt "(#) $"
set timeout 10
```

```
if { $argc==0} {
#     puts "missing SW ver Argument, USAGE is $argv0 followed by
extenstion of software version"
#     puts "example $argv0 162002"
#     exit
}
##########################################################################
#######
#provide the list of node IP addresses below
##########################################################################
#######
set ips "172.24.220.31 172.24.220.37" ; #8860 and 8840- SW ver 7.3
Nodes
#set codeSrvrIP 172.24.80.18 ;  # tftpserver for SW to be downloaded
set Ver [lindex $argv 0]
set swVer 7.0.x.x.$Ver
foreach ip $ips {

      connect8800  out $ip  xxxx xxxx.8800
      set id1 $out(spawnID)
      send -i $id1 "enable config terminal global-pagination disable
\r"
      issueCommand out $id1 "show ver"
      regexp {(.*): ([0-9]+.[0-9]+.[0-9a-z]+.[0-9a-z]+.[0-9]+)}
$out(output) m m1 ver
      puts "initial SW version is $ver "
      puts
"################################################################## "
      puts "BEGIN admin enablng VTs and DS1s"
      puts
"################################################################## "

      issueCommand out $id1 "sh event current-table"
      issueCommand out $id1 "show node extensive"
      issueCommand out $id1 "show equip line-module"
      #issueCommand out $id1 "enable config equip channel so-1/9/1/1:1"
foreach slot $slots {
foreach module {1 2 3 4 } {
foreach port {1 2} {
foreach channel {1 2 3} {
      issueCommand out $id1 "enable conf equip port so-
1/$slot/$module/$port sonet channel sts1 $channel "
      issueCommand out $id1 "admin enable"
      enableAdminMultiVTs out $id1 1 7 1 4
      enableAdminMultiDS1s out $id1 1 7 1 4
      issueCommand out $id1 "exit"
      issueCommand out $id1 "show equip channel so-
1/$slot/$module/$port:$channel vt"
} ; #end of foreach channel
} ; #end of foreach port
} ; #end of foreach module
} ; #end of foreach slot
```

```
      puts
"################################################################## "
      puts "BEGIN creating bundles, L2 ATM interfaces and L3 IP
subinterfaces"
      puts
"################################################################## "
#set ipPrefix 1 ; #set this as 1 if all slots are used and we want to
start from beginning, else set to which slot you want to start with
set ipPrefix 3 ; # will start ip address like 3.1.1.1/24 signifying 3rd
slot
foreach slot $slots {
set ipSN $ipPrefix
set ipPrefix [expr $ipPrefix+1]
foreach module {1 2 3 4 } {
foreach port {1 2} {
foreach channel {1 2 3} {
set ds1Num 1
createMultiDS1timeSlots out $id1 $slot $module $port $channel $ds1Num 1
7 1 4
createL2BundleInt out $id1 $slot $module $port $channel $ipSN
} ; #end of foreach channel
} ; #end of foreach port
} ; #end of foreach module
} ; #end of foreach slot
} ;

exit 1 ; # end of program
```

==========

Module 3: LOG file from running automation on Tellabs 8800 router

==========

```
spawn telnet 1xx.24.220.xx
spawnID is 4
Trying 1xx.24.220.xx...
Connected to 1xx.24.220.xx.
Escape character is '^]'.


 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* * * *
 *
*
 *         Welcome to Tellabs Multi-service OS Command Line Interface
*
 *
*
 *                              Tellabs, Inc.
*
```

```
 *                          Santa Clara, CA 95050
*
 *                             www.tellabs.com
*
 *
*
 *      North America: 1 (8xx) xxx xxxx   International: (xx0) xx2 xxx0
*
 *
*
 *           Copyright(c) 2006 Tellabs.      All rights reserved.
*
 *
*
 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* * * *



Login: xxxxx
Password:

root logged in, 03/20/2009 17:46:16

8840-40# enable config terminal global-pagination disable
8840-40# show ver

Software Version: 99.0.0.0.165473

8840-40# initial SW version is 99.0.0.0.165473
######################################################################
admin enablng VTs using Automation script
######################################################################
show event current-table

LEGEND:
   Severity:   C: Critical, M: Major, m: Minor, I: Info

          S
Seq       e Description
#         v Cat  Instance           Text/Explanation
---       - ---  --------           ----------------
252       M PORT so-1/7/2/2         sonet Alarm LOS
1231      M PORT so-1/7/1/1         sonet Alarm LOS

8840-40# show node extensive

Node Number: 1;  Name:  - ;  Product: Tellabs8840
  Customer Name:  - ;  Location:  -
  Contact:  -
  Description:  -
  Time zone: UTC;  System Up Time: 8 days,  1:23:50.00 (hr:min:sec)
  Last Reboot Time: 09/25/2006 16:18:53;  Current Time: 03/20/2009
17:46:21
```

```
  Statistics poll timer interval: 15 minutes;  Statistics archival:
disabled
  Last Restart Reason: operator requested;  Switch-over Mode: enabled
  Switch-over oscillation count: 3;  System initiated Sw-over Locked:
No
  Last switch-over [ none ] time: not available
  Last switch-over reason: none
  Last switch-over status: none
  Redundancy Status: fully Redundant
  Secondary Redundancy Status: none
  Active Status: fully Active
  Suppress Alarm:    [ Power Source 1: no ]  [ Power Source 4: no ]
  Switch Fabric Status: normal
  Node Upgrade Operation: idle

  Node Software Version Information:
  LEGEND: Op status:    up : Up,      dn : down,     ts : testing
          Image status:  R: Running,  C: Complete,  L: Loading,  V:
Valid
                         u: Unknown,  I: Invalid,   ch: Caching

Crd Op Image1          Sts    Image2          Sts   Select Image
Fail Reason
--- -- ------          ---    ------          ---   ------------    ---
--------
S1* up 99.0.0.0.165473 R      99.0.0.0.165098 C     99.0.0.0.165473
none
S2  dn not available   I      not available   I     99.0.0.0.165473
none
S3  up 99.0.0.0.165473 R      99.0.0.0.165098 C     99.0.0.0.165473
none
L1  dn not available   I      not available   I     99.0.0.0.165473
none
L2  dn not available   I      not available   I     99.0.0.0.165473
none
L3  dn not available   I      not available   I     99.0.0.0.165473
none
L4  dn not available   I      not available   I     99.0.0.0.165473
none
L5  up 4.0.0.3.107503  C      99.0.0.0.165473 R     99.0.0.0.165473
none
L6  up 99.0.0.0.165098 C      99.0.0.0.165473 R     99.0.0.0.165473
none
L7  up 99.0.0.0.165473 R      99.0.0.0.165098 C     99.0.0.0.165473
none
L8  dn not available   I      not available   I     99.0.0.0.165473
none
L9  up 99.0.0.0.165473 R      5.1.0.2.135595  C     99.0.0.0.165473
none
L10 dn not available   I      not available   I     99.0.0.0.165473
none
L11 dn not available   I      not available   I     99.0.0.0.165473
none
```

```
L12 dn not available   I      not available   I     99.0.0.0.165473
none

8840-40# show equip line-module

     LineMod Idx  Admin    Op  Cfg Type          Act Type
Equip State
     -----------  -----    --  --------          --------          ----
-------
     1/6/1        enable   up  oc3-stm1-atm      oc3-stm1-atm
plugged
     1/6/2        enable   up  oc3-stm1-atm      oc3-stm1-atm
plugged
     1/6/3        enable   up  oc3-stm1-atm      oc3-stm1-atm
plugged
     1/6/4        enable   up  oc3-stm1-atm      oc3-stm1-atm
plugged
     1/7/1        enable   up  oc3-stm1-atm      oc3-stm1-atm
plugged
     1/7/2        enable   up  oc3-stm1-atm      oc3-stm1-atm
plugged
     1/7/3        enable   up  oc3-stm1-atm      oc3-stm1-atm
plugged
     1/7/4        enable   up  oc3-stm1-atm      oc3-stm1-atm
plugged
     1/9/1        enable   up  oc3-stm1-atm      oc3-stm1-atm
plugged
     1/9/2        enable   up  oc3-stm1-atm      oc3-stm1-atm
plugged
     1/9/3        enable   up  oc3-stm1-atm      oc3-stm1-atm
plugged
     1/9/4        enable   up  oc3-stm1-atm      oc3-stm1-atm
plugged

8840-40# enable config equip port so-1/6/1/1_ sonet-options channel
sts1 1
8840-40# enable config equip channel so-1/6/1/1:1
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 5/1_ admin enable
```

```
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:1] )# exit
8840-40# enable config equip port so-1/6/1/1_ sonet-options channel
sts1 2
8840-40# enable config equip channel so-1/6/1/1:2
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 3/3_ admin enable
```

```
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:2] )# exit
8840-40# enable config equip port so-1/6/1/1_ sonet-options channel
sts1 3
8840-40# enable config equip channel so-1/6/1/1:3
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 2/1_ admin enable
```

```
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/1/1:3] )# exit
8840-40# enable config equip port so-1/6/1/2_ sonet-options channel
sts1 1
```

```
8840-40# enable config equip channel so-1/6/1/2:1
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 7/1_ admin enable
```

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8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:1] )# exit
8840-40# enable config equip port so-1/6/1/2_ sonet-options channel
sts1 2
8840-40# enable config equip channel so-1/6/1/2:2
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 5/3_ admin enable
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8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:2] )# exit
8840-40# enable config equip port so-1/6/1/2_ sonet-options channel
sts1 3
8840-40# enable config equip channel so-1/6/1/2:3
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 4/1_ admin enable
```

```
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/1/2:3] )# exit
8840-40# enable config equip port so-1/6/2/1_ sonet-options channel
sts1 1
8840-40# enable config equip channel so-1/6/2/1:1
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 2/3_ admin enable
```

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8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:1] )# exit
8840-40# enable config equip port so-1/6/2/1_ sonet-options channel
sts1 2
8840-40# enable config equip channel so-1/6/2/1:2
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 1/1_ admin enable
```

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8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:2] )# exit
8840-40# enable config equip port so-1/6/2/1_ sonet-options channel
sts1 3
8840-40# enable config equip channel so-1/6/2/1:3
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 6/3_ admin enable
```

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8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/2/1:3] )# exit
8840-40# enable config equip port so-1/6/2/2_ sonet-options channel
sts1 1
8840-40# enable config equip channel so-1/6/2/2:1
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 5/1_ admin enable
```

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8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:1] )# exit
8840-40# enable config equip port so-1/6/2/2_ sonet-options channel
sts1 2
8840-40# enable config equip channel so-1/6/2/2:2
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 3/3_ admin enable
```

```
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:2] )# exit
8840-40# enable config equip port so-1/6/2/2_ sonet-options channel
sts1 3
8840-40# enable config equip channel so-1/6/2/2:3
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 2/1_ admin enable
```

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8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/2/2:3] )# exit
8840-40# enable config equip port so-1/6/3/1_ sonet-options channel
sts1 1
```

```
8840-40# enable config equip channel so-1/6/3/1:1
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 7/1_ admin enable
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8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:1] )# exit
8840-40# enable config equip port so-1/6/3/1_ sonet-options channel
sts1 2
8840-40# enable config equip channel so-1/6/3/1:2
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 5/3_ admin enable
```

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8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:2] )# exit
8840-40# enable config equip port so-1/6/3/1_ sonet-options channel
sts1 3
8840-40# enable config equip channel so-1/6/3/1:3
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 4/1_ admin enable
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8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/3/1:3] )# exit
8840-40# enable config equip port so-1/6/3/2_ sonet-options channel
sts1 1
8840-40# enable config equip channel so-1/6/3/2:1
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 2/3_ admin enable
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8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:1] )# exit
8840-40# enable config equip port so-1/6/3/2_ sonet-options channel
sts1 2
8840-40# enable config equip channel so-1/6/3/2:2
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 1/1_ admin enable
```

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8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:2] )# exit
8840-40# enable config equip port so-1/6/3/2_ sonet-options channel
sts1 3
8840-40# enable config equip channel so-1/6/3/2:3
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 6/3_ admin enable
```

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8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/3/2:3] )# exit
8840-40# enable config equip port so-1/6/4/1_ sonet-options channel
sts1 1
8840-40# enable config equip channel so-1/6/4/1:1
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 5/1_ admin enable
```

```
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:1] )# exit
8840-40# enable config equip port so-1/6/4/1_ sonet-options channel
sts1 2
8840-40# enable config equip channel so-1/6/4/1:2
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 3/3_ admin enable
```

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8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:2] )# exit
8840-40# enable config equip port so-1/6/4/1_ sonet-options channel
sts1 3
8840-40# enable config equip channel so-1/6/4/1:3
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 2/1_ admin enable
```

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8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/4/1:3] )# exit
8840-40# enable config equip port so-1/6/4/2_ sonet-options channel
sts1 1
```

```
8840-40# enable config equip channel so-1/6/4/2:1
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 7/1_ admin enable
```

```
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:1] )# exit
8840-40# enable config equip port so-1/6/4/2_ sonet-options channel
sts1 2
8840-40# enable config equip channel so-1/6/4/2:2
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 5/3_ admin enable
```

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8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:2] )# exit
8840-40# enable config equip port so-1/6/4/2_ sonet-options channel
sts1 3
8840-40# enable config equip channel so-1/6/4/2:3
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 4/1_ admin enable
```

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8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/6/4/2:3] )# exit
8840-40# enable config equip port so-1/7/1/1_ sonet-options channel
sts1 1

8840-40# enable config equip channel so-1/7/1/1:1
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 2/2_ admin enable
```

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8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:1] )# exit
8840-40# enable config equip port so-1/7/1/1_ sonet-options channel
sts1 2

8840-40# enable config equip channel so-1/7/1/1:2
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 7/3_ admin enable
```

```
8840-40(cfg-ch [so-1/7/1/1:2] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:2] )# exit

8840-40# enable config equip port so-1/7/1/1_ sonet-options channel
sts1 3

8840-40# enable config equip channel so-1/7/1/1:3
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 5/3_ admin enable
```

```
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/1/1:3] )# exit

8840-40# enable config equip port so-1/7/1/2_ sonet-options channel
sts1 1
8840-40# enable config equip channel so-1/7/1/2:1
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 3/4_ admin enable
```

```
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:1] )# exit


8840-40# enable config equip port so-1/7/1/2_ sonet-options channel
sts1 2
8840-40# enable config equip channel so-1/7/1/2:2
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 1/4_ admin enable
```

```
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:2] )# exit
```

```
8840-40# enable config equip port so-1/7/1/2_ sonet-options channel
sts1 3
8840-40# enable config equip channel so-1/7/1/2:3
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 6/2_ admin enable
```

```
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/1/2:3] )# exit


8840-40# enable config equip port so-1/7/2/1_ sonet-options channel
sts1 1
8840-40# enable config equip channel so-1/7/2/1:1
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 4/2_ admin enable
```

```
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:1] )# exit


8840-40# enable config equip port so-1/7/2/1_ sonet-options channel
sts1 2

8840-40# enable config equip channel so-1/7/2/1:2
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 2/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# vt-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 1/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 1/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 1/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 1/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 2/1_ admin enable
```

```
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 2/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 2/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 2/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 3/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 3/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 3/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 3/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 4/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 4/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 4/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 4/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 5/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 5/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 5/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 5/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 6/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 6/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 6/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 6/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 7/1_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 7/2_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 7/3_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# ds1-options 7/4_ admin enable
8840-40(cfg-ch [so-1/7/2/1:2] )# exit
```