



TECHNICAL BULLETIN: SES-20080626-A

Title: bright blue Bandwidth Usage

This document outlines a series of bandwidth usage tests performed on the **bright blue Intelligent Access Manager** system. Results indicate a negligible impact on network traffic upon normal usage. If the user is not logged into bright blue, there is zero bandwidth usage.

The following lists the results of eight (8) tests with a populated database representing real world usage. This **bright blue** controller database consisted of 1,024 Personnel records and 30,000 Cardholder Transactions.

Results were compiled using a 100Mbps Hub at 100Mbps, connected to a computer running a packet analyzer and a **bright blue** Controller board. The Packet analyzer was set up with a filter to capture all traffic to and from the **bright blue** panel in order to eliminate miscellaneous traffic such as Windows Broadcasts or name queries from the host machine.

Each test was completed three (3) times (except for the last which is a software/firmware update) with the total averaged results at the bottom of each test. All results indicate extremely minimal network utilization for **bright blue**. This is due to the fact that all communications between **bright blue** and the field hardware are facilitated directly from the **bright blue** controller board and not over a TCP/IP Connection. Web browsing is the only function completed over a network connection.

TEST #1 - Opening the **bright blue** home web page

1. Total Bytes Captured: 1,001,405
Total Bits Captured: 8,011,240
Duration: 16.651 Seconds
Bits Per Second: 481,126.659
Bandwidth Utilization: 0.481% or 481 Thousandth's of one percent.

2. Total Bytes Captured: 1,002,136
Total Bits Captured: 8,017,088
Duration: 17.075 Seconds
Bits Per Second: 469,521.991
Bandwidth Utilization: 0.469% or 469 Thousandth's of one percent.

3. Total Bytes Captured: 1,001,411
Total Bits Captured: 8,011,288
Duration: 6.19 Seconds
Bits Per Second: 1,294,230.694
Bandwidth Utilization: 1.294%

Total Average Bytes Captured: 1,001,650.66
Total Average Bits Captured: 8,013,205.33
Total Average Duration: 13.305 seconds
Total Average Bits Per Second: 748,293.114

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Total Average Bandwidth: 0.748% or 748 Thousandth's of one percent

TEST #2 - Opening & Logging into the **bright blue** home web page

1. Total Bytes Captured: 1,590,732
Total Bits Captured: 12,725,856
Duration: 19.069 seconds
Bits Per Second: 667,358.33
Bandwidth Utilization: 0.667% or 667 Thousandth's of one percent
2. Total Bytes Captured: 1,592,123
Total Bits Captured: 12,736,984
Duration: 12.289 seconds
Bits Per Second: 1,036,454.064
Bandwidth Utilization: 1.036%
3. Total Bytes Captured: 1,590,542
Total Bits Captured: 12,724,336
Duration: 14.9 seconds
Bits Per Second: 853,982.281
Bandwidth Utilization: 0.854% or 854 Thousandth's of one percent

Total Average Bytes Captured: 1,591,132.33
Total Average Bits Captured: 12,729,058.66
Total Average Duration: 15.42 seconds
Total Average Bits Per Second: 852,598.225
Total Average Bandwidth: 0.852% or 852 Thousandth's of one percent

TEST #3 - Running Reports (a)

Report Parameters: 6/16/2008 – 6/17/2008
Report Name: All Access Attempts History Report
Total Records retrieved: Approx 2,800

1. Total Bytes Captured: 1,354,297
Total Bits Captured: 10,834,376
Duration: 157.045 seconds
Bits Per Second: 68,988.99
Bandwidth Utilization: 0.069% or 69 Thousandth's of one percent
2. Total Bytes Captured: 1,263,580
Total Bits Captured: 10,108,640
Duration: 104.724 seconds
Bits Per Second: 96,526.488
Bandwidth Utilization: 0.097% or 97 Thousandth's of one percent

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3. Total Bytes Captured: 1,268,434
Total Bits Captured: 10,147,472
Duration: 95.777 seconds
Bits Per Second: 105,948.943
Bandwidth Utilization: .106% or 106 Thousandth's of one percent

Total Average Bytes Captured: 1,295,437
Total Average Bits Captured: 10,363,496
Total Average Duration: 119.182 seconds
Total Average Bits Per Second: 90,488.14
Total Average Bandwidth: 0.091% or 91 Thousandth's of one percent

TEST #4 - Running Reports (b)

Report Parameters: 150 personnel selected including User Defined Fields
Report Name: Personnel Information Report

1. Total Bytes Captured: 441,268
Total Bits Captured: 3,530,144
Duration: 70.13 seconds
Bits Per Second: 50,337.15
Bandwidth Utilization: 0.050% or 50 Thousandth's of one percent
2. Total Bytes Captured: 444,682
Total Bits Captured: 3,557,456
Duration: 53.944 seconds
Bits Per Second: 65,947.204
Bandwidth Utilization: 0.066% or 66 Thousandth's of one percent
3. Total Bytes Captured: 440979
Total Bits Captured: 3527832
Duration: 47.626 seconds
Bits Per Second: 74073.657
Bandwidth Utilization: 0.074% or 74 Thousandth's of one percent

Total Average Bytes Captured: 442,309.67
Total Average Bits Captured: 3,538,477.33
Total Average Duration: 57.233seconds
Total Average Bits Per Second: 63,452.67
Total Average Bandwidth: 0.063% or 63 Thousandth's of one percent

TEST #5 - Exporting Reports

Report Parameters: 150 personnel selected including User Defined Fields
Report Name: Personnel Information Report

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This test does NOT include the actual running of the report (the results of the running of the report are shown in Test #4). This test is the export of the results to the local disk after the result set had been displayed.

1. Total Bytes Captured: 208,591
Total Bits Captured: 1,668,728
Duration: 11.41 seconds
Bits Per Second: 146,251.358
Bandwidth Utilization: 0.146% or 146 Thousandth's of one percent
2. Total Bytes Captured: 213,782
Total Bits Captured: 1,710,256
Duration: 9.387 seconds
Bits Per Second: 182,194.098
Bandwidth Utilization: 0.182% or 182 Thousandth's of one percent
3. Total Bytes Captured: 212,116
Total Bits Captured: 1,696,928
Duration: 12.152 seconds
Bits Per Second: 139,641.869
Bandwidth Utilization: 0.140% or 140 Thousandth's of one percent

Total Average Bytes Captured: 211,496
Total Average Bits Captured: 1,691,970.66
Total Average Duration: 10.983 seconds
Total Average Bits Per Second: 156,029.108
Total Average Bandwidth: 0.156% or 156 Thousandth's of one percent

TEST #6 - Group Access Changes

This test consisted of changing access assignments for a group of personnel. 1,024 personnel records were given access to two (2) doors.

The analysis included the complete session from the point of clicking on Access Assignments and going forward.

1. Total Bytes Captured: 608,151
Total Bits Captured: 4,865,208
Duration: 371.158 seconds
Bits Per Second: 13,108.185
Bandwidth Utilization: 0.013% or 13 Thousandth's of one percent
2. Total Bytes Captured: 435,280
Total Bits Captured: 3,482,240
Duration: 373.996 seconds
Bits Per Second: 9,310.901

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Bandwidth Utilization: 0.009% or 9 Thousandth's of one percent

3. Total Bytes Captured: 432,378
Total Bits Captured: 3,459,024
Duration: 367.054 seconds
Bits Per Second: 9,423.746
Bandwidth Utilization: 0.009% or 9 Thousandth's of one percent

Total Average Bytes Captured: 491,936.33
Total Average Bits Captured: 3,935,490.66
Total Average Duration: 370.736 seconds
Total Average Bits Per Second: 10,614.277
Total Average Bandwidth: 0.010% or 10 Thousandth's of one percent

TEST #7 - Downloading a database backup

This test consisted of downloading a previously saved database, 1.24MB in size.

The analysis included the complete session from the point of clicking on the Utilities link and going forward.

1. Total Bytes Captured: 1,439,576
Total Bits Captured: 11,516,608
Duration: 25.058 seconds
Bits Per Second: 459,598.052
Bandwidth Utilization: 0.460% or 460 Thousandth's of one percent
2. Total Bytes Captured: 1,440,733
Total Bits Captured: 11,525,864
Duration: 34.172 seconds
Bits Per Second: 337,289.71
Bandwidth Utilization: 0.337% or 337 Thousandth's of one percent
3. Total Bytes Captured: 1,442,321
Total Bits Captured: 11,538,568
Duration: 19.512 seconds
Bits Per Second: 591,357.523
Bandwidth Utilization: 0.591% or 591 Thousandth's of one percent

Total Average Bytes Captured: 1,440,876.66
Total Average Bits Captured: 11,527,013.33
Total Average Duration: 26.247 seconds
Total Average Bits Per Second: 462,748.428
Total Average Bandwidth: 0.463% or 463 Thousandth's of one percent

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TEST #8 - Uploading a software update

This test consisted of uploading a software update to **bright blue** from the local machine. The size of the update was 2.96MB.

The analysis included the complete session from the point of clicking on the Utilities link and returning to the Login Page when complete.

Average Bytes Captured: 3,446,807

Average Bits Captured: 27,574,456

Average Duration: 130.485 seconds

Average Bits Per Second: 211,322.803

Average Bandwidth: 0.211% or 211 Thousandth's of one percent

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