

Surveillance Solution Planner

User Guide

Version 1.0

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INTRODUCTION

The PROMISE Surveillance Solution Planner is intended to help simplify some of the planning process for the creation and deployment of a video surveillance network. To use the planner, simply enter some basic information such as the number of camera to be used and the length of time video data is required to be archived, and the planner can give the user an idea of what type of storage and recording server equipment will be needed for the network infrastructure.

To view the Planner online, go to this link:

<http://www.promise.com/Solutions/SurveillancePlanner/>

Surveillance Solution Planner home menu

PROMISE TECHNOLOGY, INC. SURVEILLANCE SOLUTION PLANNER
Find your own PROMISE Solutions

FILL IN YOUR INPUT

- Number of Cameras : 100
- Calculate
- Camera Settings
- Recording Settings
- High Availability Options
- PROMISE Solutions
- Where to Buy
- Any Suggestion? or Need help? Please [click here](#) to contact us!

OUTPUT BLOCKS

Camera Input

No. of Cameras : 100
Encoding : H.264
Resolution : 1MP
Bitrate : 7.50 Mbps

Recording Mgmt.

Hours to Record : 24 Hours
Days to Record : 30 Days
Recording Rate : 100%
Remote Live View : 20 Channels

HA Options

Appliance Failover
* Disabled
RAID Storage Mode
* Active-Standby

Camera Network

NVR Storage Appliance

1 x Vess A2600
* Vess A2600, 3U16Bay
* RAID 5 + Spare Disk
* Capacity per Server: Max 56 TB
* 4 TB Hard disk drives

Storage Network

RAID Storage Subsystem

1 x Vess R2000 and 3 x JBOD
* RAID 5 + Spare Disk
* Capacity per Server : 56 TB
* 4TB Hard disk drives

Recommended PROMISE Solutions

Requirement Summary:

- * Required Storage : 256.0 TB
- * Required Bandwidth: 990.0 Mbit/Sec

Recommendations:

- * NVR Storage Appliance : 1 x [Vess A2600](#)
- * Camera per Appliance : 100
- * Max Cam per NVR Appliance: 132
- * RAID Storage Subsystem : 1 x [Vess R2000](#)
3 x [JBOD](#)

SUGGESTED TOPOLOGY

Group ID	Camera Count	Camera Start	Camera End	NVR Storage Appliance	RAID Storage Subsystem	LD Size
1	21	1	21	1	-	53 TB
2	19	22	40	1	1	48 TB
3	19	41	59	1	1	48 TB
4	19	60	78	1	1	48 TB
5	22	79	100	1	1	56 TB
Total	100					255 TB

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PREPARATION

Some basic information about the surveillance network is needed to produce a recommended topology. At a minimum, you will need to know how many cameras are needed. If you also have specific **Camera Settings** and **Recording Settings**, use this information to produce a suggested topology. Alternatively, the user can enter change the settings in order to better understand how the settings change the topology and equipment needed. Some users might also be interested in **High Availability Settings** that can change the recommended topology and equipment needed.

The table below is a summary list of the different settings available for change in the planner GUI. Please see the relevant sections that follow for a more detailed explanation of the settings. It is a good idea to check the user documentation of the Video Management Software you plan to use to see if there are any recommended settings or if there are any limitations as far as what settings are supported.

Available settings in the planner GUI

Camera	Recording	High Availability
encoding: <i>H.264, MJPEG, MPEG4</i> resolution: from <i>352x228</i> to <i>2560x1920</i> video quality: <i>High, Medium, Low</i> frame rate: <i>1 to 30</i> bit rate: <i>256 Kbit</i> to <i>7.5 Mbit</i> per second	hours to record: 1 to 24 days to record: 1 to 500 recording rate: 1 to 100% remote live view: 1 to 100%	NVR storage appliance failover: enable/disable RAID storage subsystem mode: <i>Active-Active</i> or as <i>Active-Standby</i>



Note

For information on setting up the Suggested Topology results in the Surveillance Planner, please check the Promise Knowledge Base for application notes and best practices guides.

INPUT PLANNER SETTINGS

The default Camera and Recording settings are meant to represent typical conditions for modern surveillance networks. To find out what your storage needs will be using these default settings, just enter the number of camera to be used and click the **Calculate** button. The **Output Blocks** and **Suggested Topology** appear.

In the example below, the camera count is 27. The PROMISE recommendation for 27 cameras using default settings is graphically represented, in this case 1 Vess A2200 NVR Storage Appliance and 1 Vess R2600 Storage Subsystem. The Topology appears at the bottom, dividing the cameras into two groups, each group targeting one of the Vess storage devices for handling the LiveDB and video archive data for the assigned camera group.

SAVING THE PDF

PROMISE Surveillance Solution Planner allows user the save the outcome of the planner as a PDF file.

Procedure:

1. Click the **Save PDF** button.
2. Fill the user information as asked in pop-up window.
3. Click **Download** to save the file.

CAMERA SETTINGS

The amount of storage needed and topology is effected by the camera settings. Different encoding, higher resolution and video quality settings can significantly increase the storage required and the topology. To illustrate this, in the example below, again 27 cameras are entered and default settings are used for everything except the encoding which is changed to MJPEG. In the sample below we see that this one change has a large impact on the storage capacity required as well as the topology. Compare this result to that output using the default settings in the sample on page 3.

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FILL IN YOUR INPUT

• Number of Cameras : 27

Calculate

Camera Settings

Encoding : MJPEG
Resolution : 1MP (1280x1024)
Video Quality : High
Frame Rate : 30
Bitrate : 23.44 Mbit/sec

Recording Settings

Hours to Record : 24 Hours
Days to Record : 30 Days
Recording Rate : 100 %
Remote Live View : 20 %

High Availability Options

PROMISE Solutions

NVR Storage Appliance
Auto
Capacity : Auto

RAID Storage Subsystem
Auto
Capacity : Auto

OUTPUT BLOCKS

Camera Input
No. of Cameras : 27
Encoding : MJPEG
Resolution : 1MP
Bitrate : 23.44 Mbps

Recording Mgmt.
Hours to Record : 24 Hours
Days to Record : 30 Days
Recording Rate : 100%
Remote Live View : 5 Channels

HA Options
Appliance Failover : * Disabled
RAID Storage Mode : * Active-Standby

Camera Network

NVR Storage Appliance
1 x Vess A2200
* Vess A2200, 2U6Bay
* RAID 5
* Capacity per Server: Max 20 TB
* 4 TB Hard disk drives

Storage Network

RAID Storage Subsystem
1 x Vess R2000 and 3 x JBOD
* RAID 5 + Spare Disk
* Capacity per Server : 56 TB
* 4TB Hard disk drives

Recommended PROMISE Solutions

Requirement Summary:
* Required Storage : 216.0 TB
* Required Bandwidth: 835.0 Mbit/Sec

Recommendations:
* NVR Storage Appliance : 1 x [Vess A2200](#)
* Camera per Appliance : 27
* Max Cam per NVR Appliance: 42
* RAID Storage Subsystem : 1 x [Vess R2000](#)
3 x [JBOD](#)

SUGGESTED TOPOLOGY

Group ID	Camera Count	Camera Start	Camera End	NVR Storage Appliance	RAID Storage Subsystem	ID Size
1	2	1	2	1	-	15 TB
2	6	3	8	1	1	47 TB
3	6	9	14	1	1	47 TB
4	6	15	20	1	1	47 TB
5	7	21	27	1	1	55 TB
Total	27					215 TB

CHANGE CAMERA SETTINGS

To change Camera Settings,

1. If the settings are not visible, click on the button to the right of the Camera Settings menu bar.

The button displays a downward pointing triangle when the menu is hidden.

2. Change settings as needed. See the description below for details about the different camera settings.
3. Click on the **Calculate** button.

Setting	Description
Encoding	Various types of video codec are available, H.264 and MJPEG are most common formats used in surveillance applications and are supported by most VMS. Choose the codec to be used.
Resolution	There are hundreds of different resolutions supported by different cameras. The planner provides a list of commonly used resolutions.
Video Quality	Most cameras include some way to choose the level of video quality. PROMISE Surveillance Solution Planner provides three levels of video quality, <i>High</i> , <i>Medium</i> and <i>Low</i> (also called <i>Fine</i> , <i>Normal</i> and <i>Low</i> in vendor documentation).
Frame Rate	This is also known as Frame Per Second (FPS). It is an important setting for surveillance video input. Most surveillance cameras support frame rates between 1 and 30 frames per second.
Bitrate	All video settings listed above combine to generate a video data stream. A common measure for the video data stream is the bitrate. The bitrate or bandwidth of any given camera can vary and depends on circumstances of what is recorded. The PROMISE Surveillance Solution Planner provides an approximate suggested bitrate for the given video setting.

RECORDING SETTINGS

Recording settings also effect the topology and amount of storage capacity needed. To illustrate this point, the example below uses default settings for everything except the number of days the video data is kept. Compare this result to that output using the default settings in the sample on page 3.

FILL IN YOUR INPUT

• Number of Cameras :

Calculate

Camera Settings

Encoding : H.264

Resolution : 1MP (1280x1024)

Video Quality : High

Frame Rate : 30

Bitrate : 7.50 Mbit/sec

Recording Settings

Hours to Record : 24 Hours

Days to Record : 60 Days

Recording Rate : 100 %

Remote Live View : 20 %

High Availability Options

PROMISE Solutions

Where to Buy

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OUTPUT BLOCKS

Camera Input

No. of Cameras : 27

Encoding : H.264

Resolution : 1MP

Bitrate : 7.50 Mbps

Recording Mgmt.

Hours to Record : 24 Hours

Days to Record : 60 Days

Recording Rate : 100%

Remote Live View : 5 Channels

HA Options

Appliance Failover
* Disabled

RAID Storage Mode
* Active-Standby

Camera Network

NVR Storage Appliance

1 x Vess A2200

- * Vess A2200, 2U6Bay
- * RAID 5
- * Capacity per Server: Max 20 TB
- * 4 TB Hard disk drives

Storage Network

RAID Storage Subsystem

1 x Vess R2000 and 2 x JBOD

- * RAID 5 + Spare Disk
- * Capacity per Server : 56 TB
- * 4TB Hard disk drives

Recommended PROMISE Solutions

Requirement Summary:

- * Required Storage : 138.0 TB
- * Required Bandwidth: 267.0 Mbit/Sec

Recommendations:

- * NVR Storage Appliance : 1 x [Vess A2200](#)
- * Camera per Appliance : 27
- * Max Cam per NVR Appliance: 82
- * RAID Storage Subsystem : 1 x [Vess R2000](#)
2 x [JBOD](#)

SUGGESTED TOPOLOGY

Group ID	Camera Count	Camera Start	Camera End	NVR Storage Appliance	RAID Storage Subsystem	LD Size
1	3	1	3	1	-	15 TB
2	8	4	11	1	1	40 TB
3	8	12	19	1	1	40 TB
4	8	20	27	1	1	40 TB
Total	27					137 TB

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CHANGE RECORDING SETTINGS

To change Recording Settings,

1. If the settings are not visible, click on the button to the right of the Recording Settings menu bar.

The button displays a downward pointing triangle when the menu is hidden.

2. Change settings as needed. See the description below for details about the different recording settings.
3. Click on the **Calculate** button.

Setting	Description
Hours to Record	<p>This is the number of hours recording per day on averaged across all cameras. This is a major feature of VMS used to manage and control recording for the cameras. If cameras or camera groups will be operating on different schedules, determine the average number of hours to record and enter that value.</p> <p>Default value of this setting is 24 hours.</p>
Days to Record	<p>This is the number of days the user wants to keep recorded data, before the video is overwritten by new recording. This setting is a major factor in determining overall storage space requirement.</p> <p>Default value of this setting is 30 days.</p>
Recording Rate	<p>Recording Rate is a feature based on motion detection capabilities provided by many advance cameras and in VMS.</p> <p>Moving objects trigger recording, and no recording happens if the motion detector is not triggered. The amount of recording varies tremendously depending on the circumstances of the environment.</p> <p>Default value of this setting is 100%.</p>
Remote Live view	<p>For surveillance installations live streams are available for viewing in real time, and playback of the recorded videos occurs as required.</p> <p>The number of live views and playbacks vary between installations; i.e., a casino might want to view each camera all the time, while drive way cameras might not require constant human watch.</p> <p>Default value of this setting is 20%.</p>

HA SETTINGS

To implement High Availability for a surveillance network means building redundancy and robustness into the plan. For storage and recording servers, this typically involves duplication of the RAID controllers on the storage and a backup recording server acting in a failover capacity. Changing these settings effects the amount of hardware redundancy that is recommended.

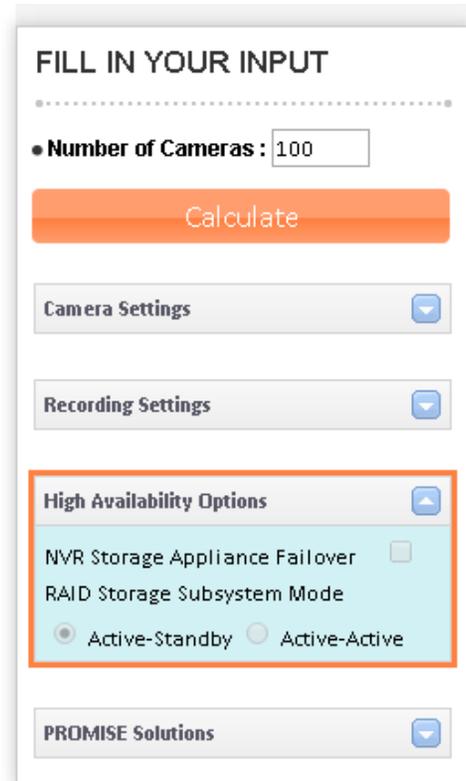
CHANGE HA SETTINGS

To change HA Settings,

1. If the settings are not visible, click on the button to the right of the HA Settings menu bar.

The button displays a downward pointing triangle when the menu is hidden.

2. Change settings as needed. See the description below for details about the different settings.
3. Click on the **Calculate** button.



Setting	Description
NVR Storage Appliance Failover	This is a VMS supported feature. In the event that any of the recording server in an array of recording servers fail, the standby server takes over the operation.
RAID Storage Subsystem Mode	This is used to determine the operation mode of dual-controller storage subsystems. Vess R2000 and Vtrak Ex30 are dual controller storage subsystems. Both of the controllers can be used as <i>Active-Active</i> or as <i>Active-Standby</i> . Default value is <i>Active-Standby</i> mode, for it is a failsafe mode.

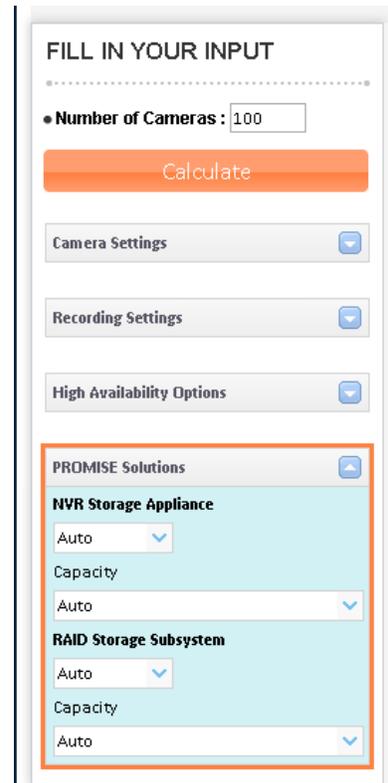
PROMISE SOLUTION SETTINGS

This menu lets you specify which PROMISE system is preferred for the NVR Storage Appliance and Storage Subsystem.

CHANGE SOLUTION SETTINGS

To specify solution settings:

1. If the settings are not visible, click on the button to the right of the Solution Settings menu bar.
The button displays a downward pointing triangle when the menu is hidden.
2. Choose the preferred NVR and RAID solution and capacity.



Setting	Description
NVR Storage Appliance	PROMISE has two recording server options in the Vess A2000 Series. The Vess A2200 is a 2U 6-bay Intel I3 based solution, the Vess A2600 is a 3U 16-bay Intel Xeon based solution. Default selection is <i>Auto</i> .
Capacity (NVR Storage Appliance)	The number of Hard Disk Drives in a system is limited by the number of available slots, so total capacity is determined by the capacity of the HDD used. PROMISE recommends using <i>RAID 5</i> for Vess A2200 and <i>RAID 5 + Spare Disk</i> for Vess A2600. Default selection of this option is <i>Auto</i> .
RAID Storage Subsystem	PROMISE recommends Vess R2000 series or VTrak Ex30 series Storage Appliances for expansion. Default selection is <i>Auto</i> .
Capacity (RAID Storage Subsystem)	Total capacity is determined by the capacity of the HDD used. PROMISE recommends using <i>RAID 5 + Spare Disk</i> . Default section is <i>Auto</i> .

OUTPUT BLOCKS

Upon calculating the NVR and storage needs, the output is displayed in the main panel of the user interface. The categories include the values input for the calculation on top, with the equipment recommendations below.

FILL IN YOUR INPUT

• Number of Cameras :

Calculate

Camera Settings

Encoding :

Resolution :

Video Quality :

Frame Rate :

Bitrate : Mbit/sec

Recording Settings

Hours to Record : Hours

Days to Record : Days

Recording Rate : %

Remote Live View : %

High Availability Options

PROMISE Solutions



Where to Buy

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OUTPUT BLOCKS

Camera Input

No. of Cameras : 182
Encoding : H.264
Resolution : 1MP
Bitrate : 7.50 Mbps

Recording Mgmt.

Hours to Record : 24 Hours
Days to Record : 30 Days
Recording Rate : 100%
Remote Live View : 36 Channels

HA Options

Appliance Failover
* Disabled
RAID Storage Mode
* Active-Standby

Camera Network

NVR Storage Appliance

2 x Vess A2000 Series

- * 1 x Vess A2600, 3U16Bay
- * 1 x Vess A2200, 2U6Bay
- * RAID 5 + Spare Disk/RAID 5
- * Capacity per Server: 56/20 TB
- * Max 4 TB Hard disk drives

Storage Network

RAID Storage Subsystem

2 x Vess R2000 and 5 x JBOD

- * RAID 5 + Spare Disk
- * Capacity per Server: 56 TB
- * 4TB Hard disk drives

Recommended PROMISE Solutions

Requirement Summary:

- * Required Storage : 465.0 TB
- * Required Bandwidth: 1,802.0 Mbit/Sec

Recommendations:

- * NVR Storage Appliance : 1 x [Vess A2600](#)
1 x [Vess A2200](#)
- * Camera per Appliance : 91
- * Max Cam per NVR Appliance: 132
- * RAID Storage Subsystem : 2 x [Vess R2000](#)
5 x [JBOD](#)

SUGGESTED TOPOLOGY

Group ID	Camera Count	Camera Start	Camera End	NVR Storage Appliance	RAID Storage Subsystem	LD Size
1	21	1	21	1	-	53 TB
2	21	22	42	2	-	53 TB
3	20	43	62	1	1	51 TB
4	20	63	82	2	2	51 TB
5	20	83	102	1	1	51 TB
6	20	103	122	2	2	51 TB
7	20	123	142	1	1	51 TB
8	20	143	162	2	2	51 TB
9	20	163	182	1	1	51 TB
Total	182					465 TB

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SUMMARY AND RECOMMENDATIONS

Based on user and default inputs, the planner calculates overall requirement. That includes total storage requirement, total bandwidth requirement, power budget requirements, total rack space requirement, etc.

The summary and recommendations are listed in a box "Recommended PROMISE Solutions".

SUGGESTED TOPOLOGY

Suggested Topology is an advance feature of the planner. It provides the guideline of allocation and interconnection between cameras, recording servers and storage appliances.

Suggested topology is displayed in a table. Each Group represents one RAID subsystem (including Vess A2000), where video data from a certain numbers of cameras are recorded and stored.

The **NVR Storage Appliance** column displays the Recording Server interface of the given camera group and **RAID Storage Subsystem** displays the RAID interface.

Group ID	Camera Count	Camera Start	Camera End	NVR Storage Appliance	RAID Storage Subsystem	LD Size
1	21	1	21	1	-	53 TB
2	21	22	42	2	-	53 TB
3	20	43	62	1	1	51 TB
4	20	63	82	2	2	51 TB
5	20	83	102	1	1	51 TB
6	20	103	122	2	2	51 TB
7	20	123	142	1	1	51 TB
8	20	143	162	2	2	51 TB
9	20	163	182	1	1	51 TB
Total	182					465 TB

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For the example used here, there are two Vess A2000 NVR Storage Appliances, two Vess R2000 RAID Subsystems and five JBODs. That makes it total nine groups.

Group 1 is located in first Vess A2000 NVR Storage Appliances.

- Total 21 Cameras are recorded in this group.
- Recording Server Interface of this group is the appliance itself.
- Since the storage array is local, thus there is no RAID Storage Subsystem required.

Group 4 is located in Second Vess R2000 RAID Storage Subsystem.

- Total 20 Cameras are recorded in this group.
- Recording Server Interface of this group is second Vess A2000 NVR Storage Appliances.
- RAID interface is the Subsystem itself.

Group 9 is located in fifth JBOD.

- Total 20 Cameras are recorded in this group.
- Recording Server Interface of this group is first Vess A2000 NVR Storage Appliances.
- RAID interface is first RAID Storage Subsystem.



Note

Note: Suggested topology is strictly a best practice guideline, not the only solution.