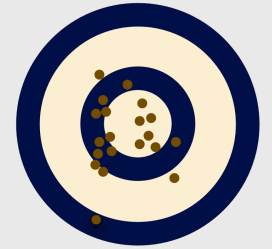


ORION
SCORING SYSTEM

ADVANCED TOPICS WEBINAR CLINIC

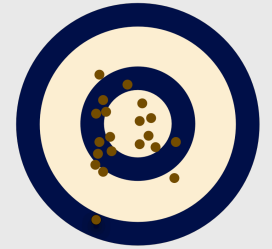
ERIK ANDERSON PH.D.
SHOOTER'S TECHNOLOGY LLC
JANUARY 2017



LOGISTICS

- Approximately 60 minutes.
- Intended for experienced users of Orion.
- Topics based on questions you sent in.
- Webinar is being recorded and available for viewing online.
- Please ask questions.
 - Use GoTo Meeting's Chat Box.

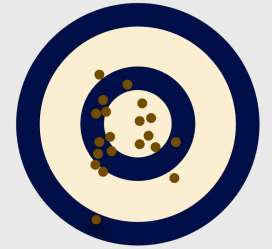
Please mute your phone.



GOOD THINGS TO REMEMBER

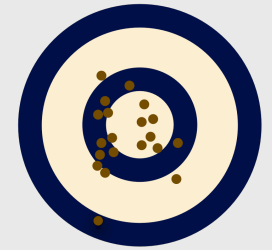
- All license holders have access to the latest version of Orion.
 - We update Orion about once a month.
 - Encourage users to update their software.
- Online Results is included in your license.

As a license holder you are entitled to all upgrades.



MATCH PROPERTIES

- Match Favorites
- Setting up Mens/Women's Air Rifle / Air Pistol
- Setting up multiple team events
- Alternatives to using barcode labels



MATCH FAVORITES

- A Match Favorite allows you to save the settings for a Match, and reuse those settings in a new match later.
- Creating a Match from a Favorite is done from the new Welcome Screen.

Match Properties

Match Name: BB Gun Training

Image Directory: C:\Users\Erik\Documents\My Matches\Match 14 Jun 2016

Match File: Match 14 Jun 2016.xml

Basics / Rulebook | Course Of Fire | Result Center | Comp. Num. | Sanctioning | Categories

3x10
3x20
4x10
4x20
10 Prone
20 Prone
40 Prone
3x10 with Test
3x20 with Test
4x10 with Test

The course of fire may not be modified after the match is created.

Target Type: Ten Bull Target with Single Perforation

Shots per bull: 1

Number of Team Members: 4

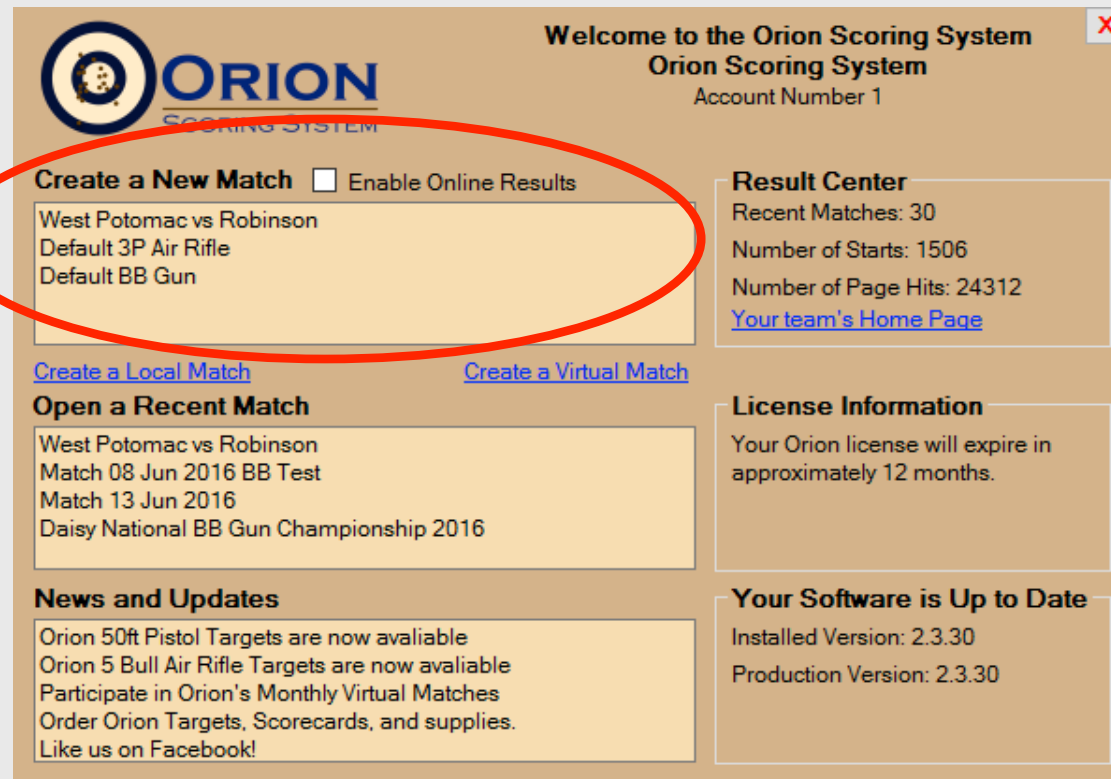
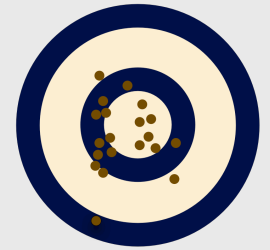
Max Num of Team Members: 100

Dynamic Team Generation:

Invert Group Analysis: None

Save Exit Save as Favorite

CREATING MATCHES FROM FAVORITES



The screenshot shows the Orion Scoring System web interface. At the top left is the Orion logo. The main heading reads "Welcome to the Orion Scoring System" with "Orion Scoring System" and "Account Number 1" below it. A red circle highlights the "Create a New Match" section, which includes a checkbox for "Enable Online Results" and a list of match favorites: "West Potomac vs Robinson", "Default 3P Air Rifle", and "Default BB Gun". Below this are links for "Create a Local Match" and "Create a Virtual Match". Other sections include "Open a Recent Match" with a list of past matches, "News and Updates" with recent announcements, "Result Center" with statistics and a link to the team's home page, "License Information" with an expiration notice, and "Your Software is Up to Date" with version information.

ORION
SCORING SYSTEM

Welcome to the Orion Scoring System
Orion Scoring System
Account Number 1

Create a New Match Enable Online Results

West Potomac vs Robinson
Default 3P Air Rifle
Default BB Gun

[Create a Local Match](#) [Create a Virtual Match](#)

Open a Recent Match

West Potomac vs Robinson
Match 08 Jun 2016 BB Test
Match 13 Jun 2016
Daisy National BB Gun Championship 2016

News and Updates

Orion 50ft Pistol Targets are now available
Orion 5 Bull Air Rifle Targets are now available
Participate in Orion's Monthly Virtual Matches
Order Orion Targets, Scorecards, and supplies.
Like us on Facebook!

Result Center

Recent Matches: 30
Number of Starts: 1506
Number of Page Hits: 24312
[Your team's Home Page](#)

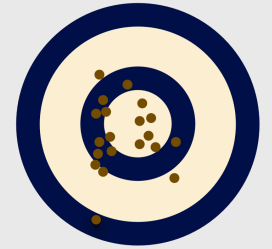
License Information

Your Orion license will expire in approximately 12 months.

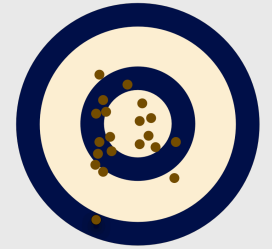
Your Software is Up to Date

Installed Version: 2.3.30
Production Version: 2.3.30

MEN'S WOMEN'S AIR RIFLE / AIR PISTOL



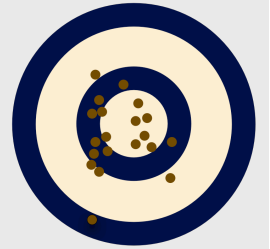
- Problem Background:
 - USAS competitions men shoot 60 shots, women shoot 40.
- Two solutions:
 - Set up two different matches, one for men and 60 shots and one for women 40 shots.
 - Set up one match, 60 shots, and turn on Gender category
 - <http://www.orionresults.com/team/MatchPage.aspx?MatchID=1.2100.713014900.0>



MULTIPLE TEAM EVENTS

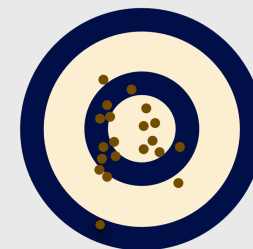
- Problem Background: One event with multiple team vs team sub competitions.
- Two solutions:
 - Set up multiple Matches one each for the different team competitions.
 - Recommended to use different starting competitor numbers.
 - DEMO: Set up one match, and use custom category to group team events

ALTERNATIVES TO BARCODE LABELS



- DEMO: Autoscore for single bull targets
- Text based Name Abbreviation

TEXT BASED COMPETITOR NUMBERS



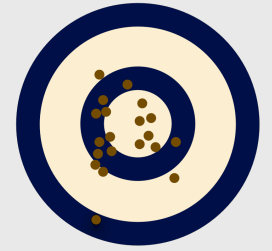
Name: _____

A B C D F G H J L M Position: S K F

N O P Q S T U V W X Y Z Series: 2 3 4

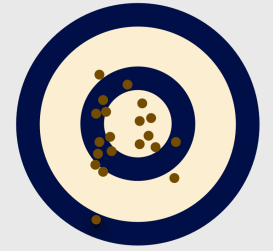
Orion ID / Competitor Number www.orionscoringsystem.com

- Intended for practice, replacing barcode labels.
 - Still recommended to use barcode labels for matches.
- Orion assigns a text based competitor number, based on the athletes name.
 - e.g. “ERIK” or “EKA”
 - Use membership fields to make the competitor number constant.
- Athletes fill in the bubbles, at the top of the target, with their competitor number, position and series.
- Orion reads the competitor number, as if it was a barcode label.



COMMON SCANNER ISSUES

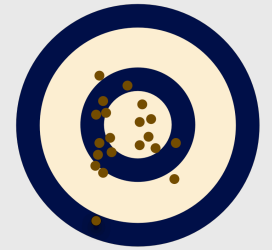
- Reinstalling drivers
- Resetting scanner drivers
- Cleaning your scanner
- When to rescan a target



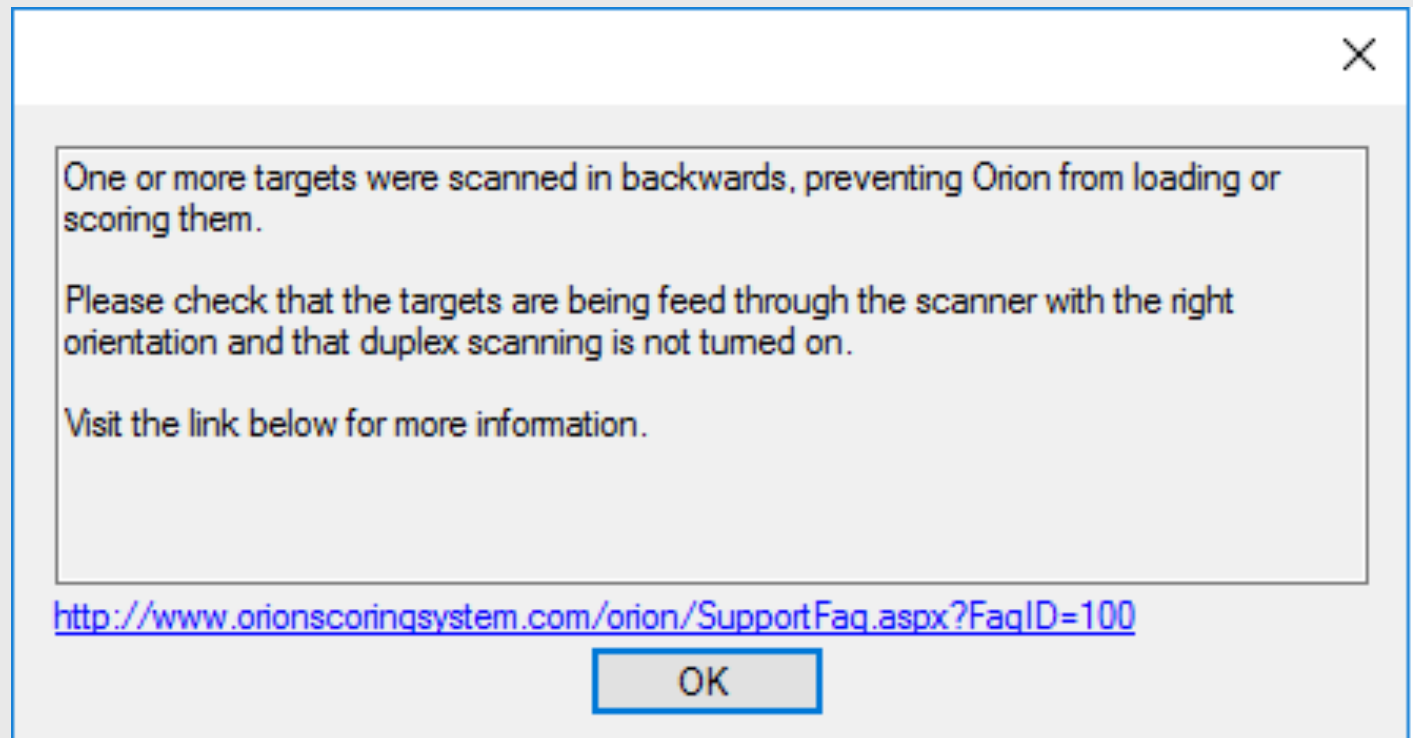
REINSTALLING DRIVERS

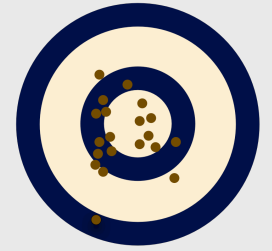
- Demo

RESETTING SCANNER DRIVERS



- “targets were scanned in backwards.”
- Demo



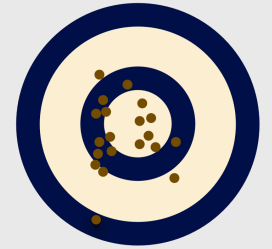


CLEANING YOUR SCANNER

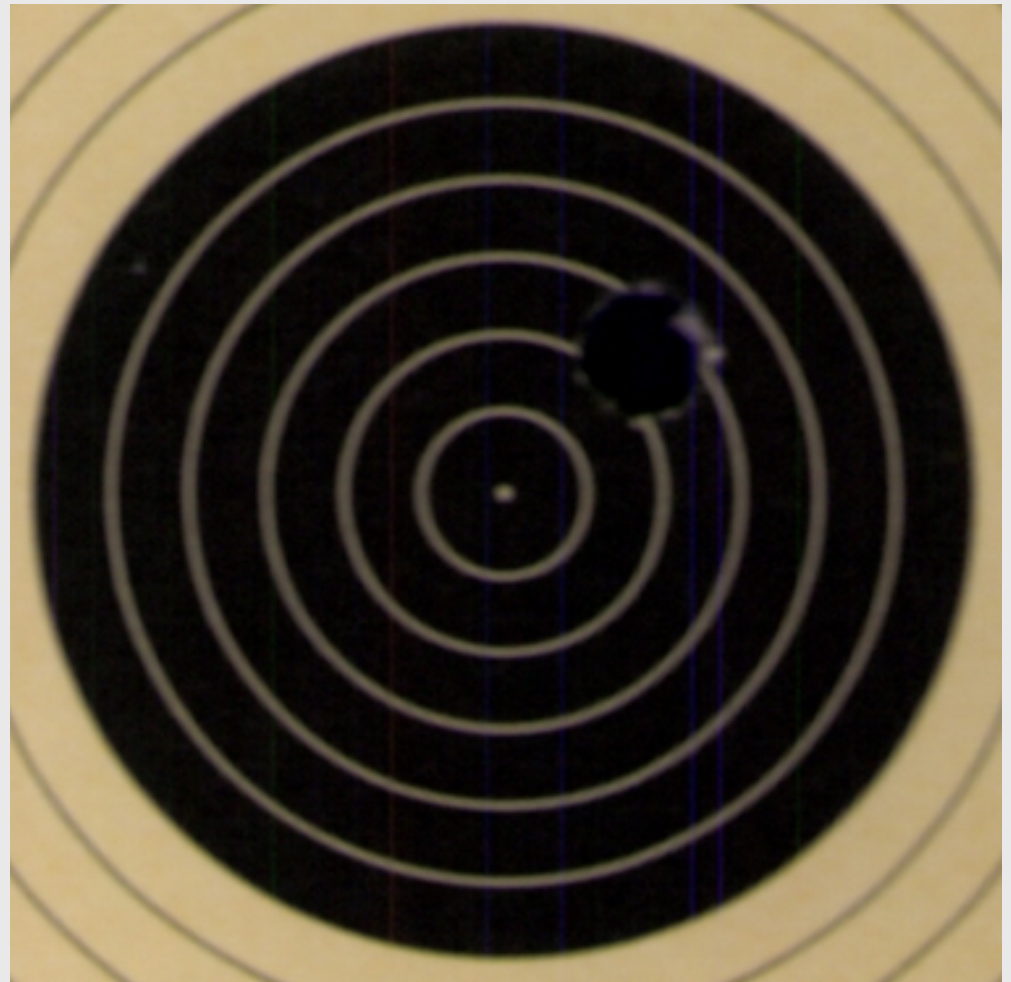
- Open you scanner to clean.
- Between relays or series of targets use canned air to blow out any debris.
- At the start of the day, use a dry clean cloth to wipe down the scanner lines.
- If your scanner continuously double feeds, the roller kit may need to be cleaned or replaced.



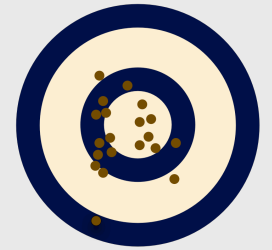
YOU REALLY NEED TO CLEAN YOUR SCANNER WHEN...



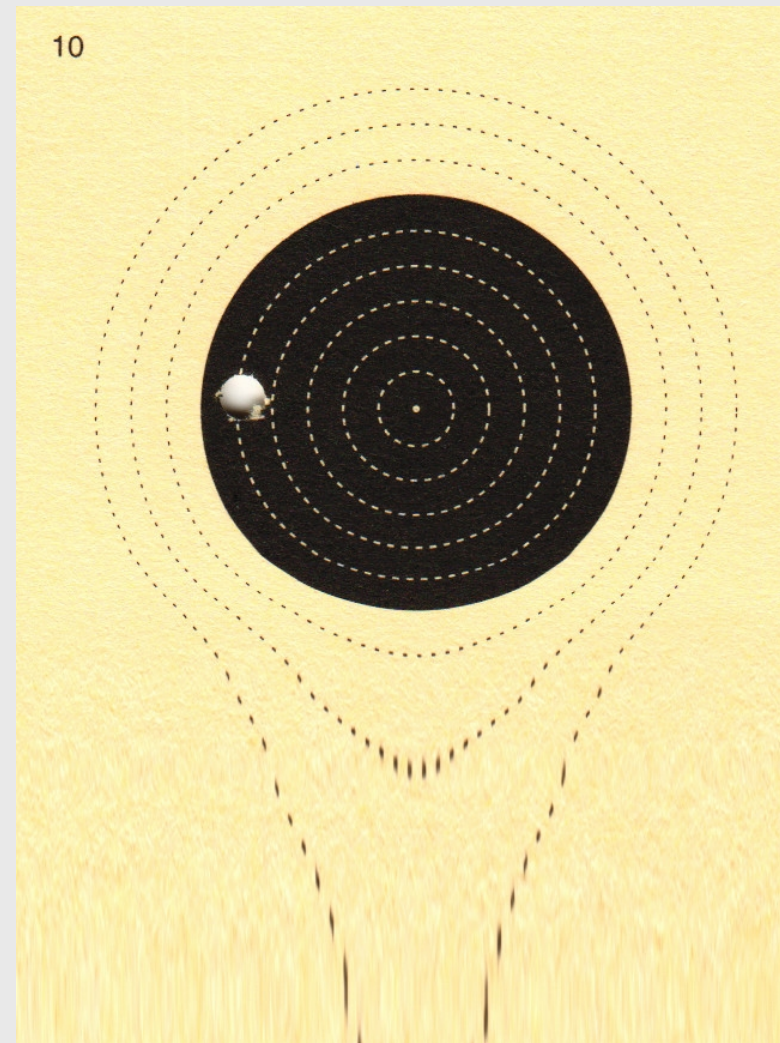
- Vertical lines show up on your scanned target images.
- Scanner glass **NEEDS** to be cleaned.

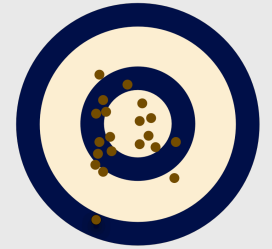


WHEN TO RESCAN A TARGET



- General rule is *never rescan a target*.
- Scanned upside down.
- Obvious deformity.
- Double feed.
 - Roller kit may need replacing.

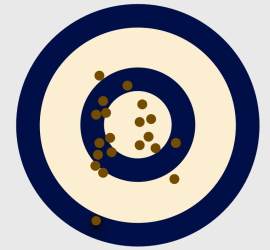




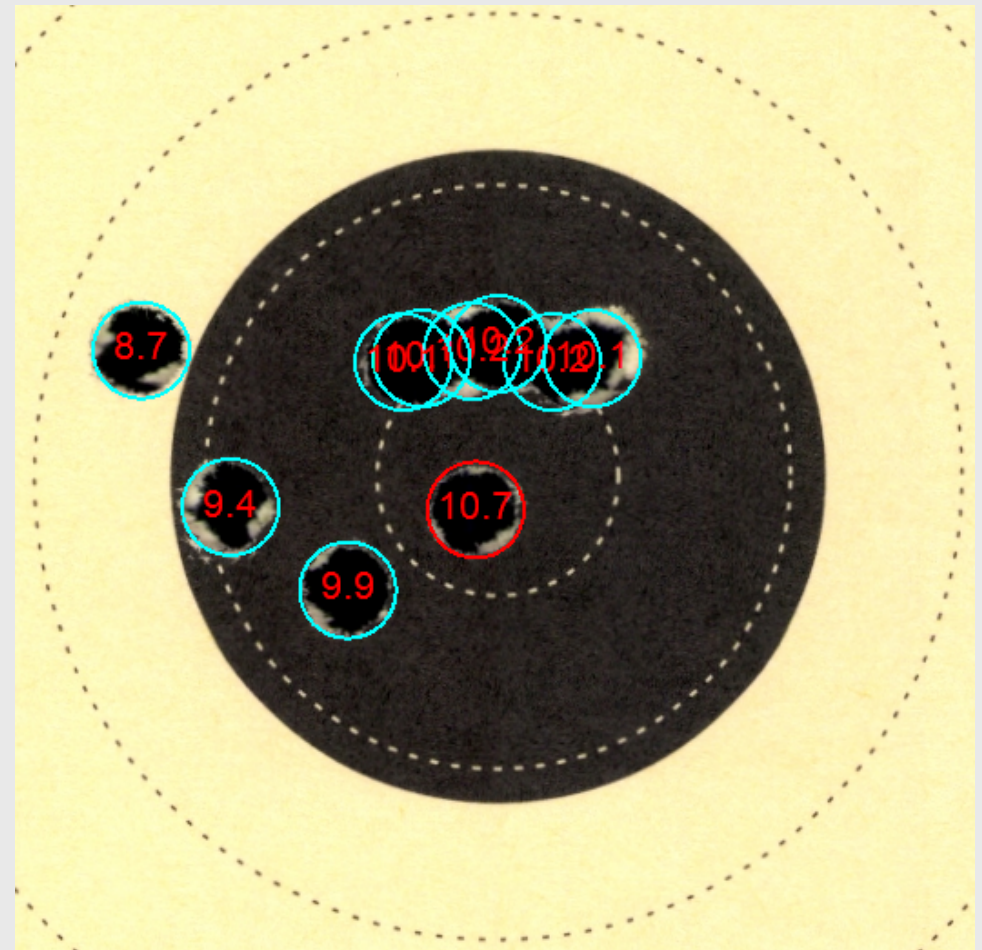
COMMON SCORING ISSUES

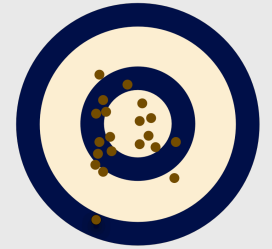
- Increasing / decreasing number of threads.
- Internal cross-fires

AUTO-SCORE PERFORMANCE



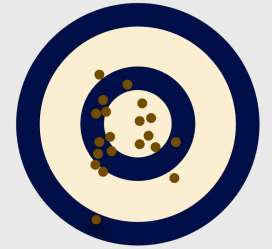
- Smallbore and multi-shot scoring takes a long time.
- Adjust number of shots per aiming bull.
- Match the number of auto-score threads to number of cores.
- Go to Run (win key + R) type in msinfo32.exe
- Demo





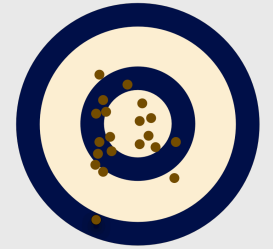
INTERNAL CROSS-FIRES

- Marking Shots as Internal Cross fires
- Assigning penalties for excessive internal cross fires
- DEMO



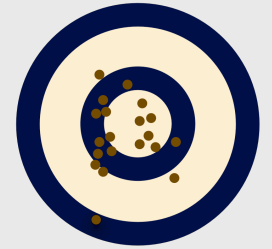
NAVIGATION CONTROLS

- Coming in next release
- SHIFT + DOWN: Open next unviewed target.
- SHIFT + UP: Open previously viewed target.
- SHIFT + LEFT: View next shot.
- SHIFT + RIGHT: View previous shot



CLOUD BACKUP

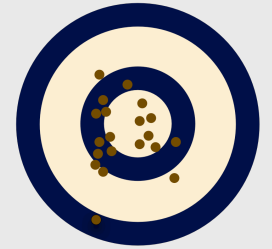
- Setting up
- Restoring



CLOUD BACKUP

- Orion can backup both Athlete Database and Match files to Cloud (offsite) storage.
- Recommended to always backup at least your match files.
 - Include Images files If you have a good Internet connection.
- Automatically backs up data every 15 minutes.
- Data files can easily be restored if needed.
- Requires free update to license.

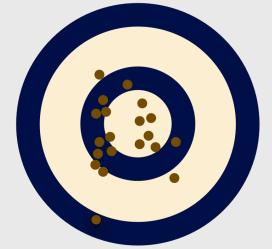




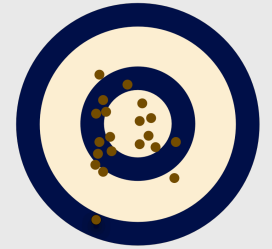
CLOUD BACKUP

- Database
 - DEMO: Setup and restoration
- Match
 - DEMO: Setup and restoration
 - Restore match directory
 - Restore old version of match data file

MOVING ORION TO A NEW COMPUTER

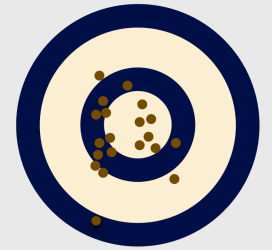


- Download and installed software.
- Install the license within Orion.
 - Call Orion's support for a new download code.
- Install the scanner drivers.
- Restore database from cloud backup.
- Optional: Restore matches from cloud backup.

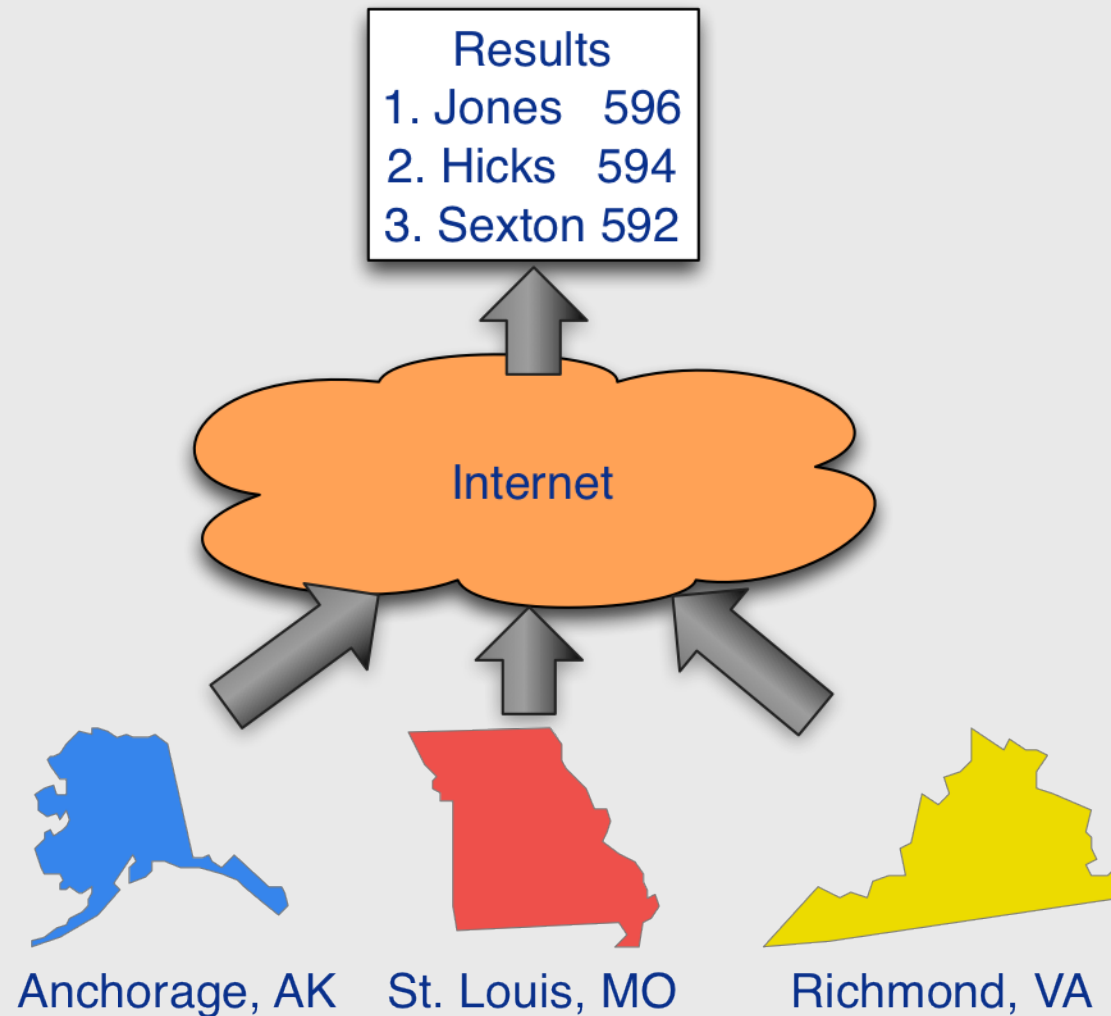


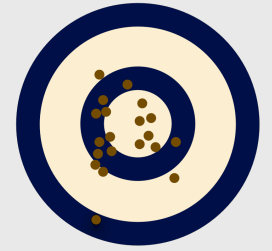
VIRTUAL MATCHES

- Use cases
- Creating a Virtual Match
- Adding children



WHAT IS A VIRTUAL MATCH?

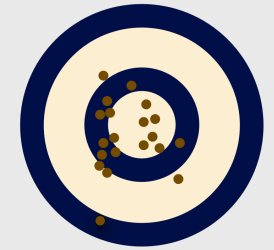




USES FOR VIRTUAL MATCHES

- Two, or more, teams competing against each other.
- Multi-venue competition.
 - JO State championships
- Regional match model.
- Large match.
- Merge results from heterogeneous scoring systems.
- League play.





CREATING A VIRTUAL MATCH

- To create the parent click on
- DEMO: 'Create Virtual Match' from Welcome Screen
 - Or 'File' -> 'New Match' -> 'Create a New Virtual Match Parent'
- Match Properties get inherited by children. Therefore its critical to check and double check properties at the time you save them.
- DEMO: To add children click on 'Match' -> 'Virtual Match Children'
 - Can only add Orion users who have a valid license and enabled Result Center.

Match Properties

Match Name: BB Gun Test Match

Image Directory: C:\Users\Erik\Documents\My Matches\BB Gun Test Match

Match File: BB Gun Test Match.xml

Basics / Rulebook | Course Of Fire | Result Center | Comp. Num. | Sanctioning | Categories

3x10
3x20
4x10
4x20
10 Prone
20 Prone
40 Prone
3x10 with Test
3x20 with Test
4x10 with Test

The course of fire may not be modified after the match is created.

Shots per bull: 1

Number of Team Members: 5

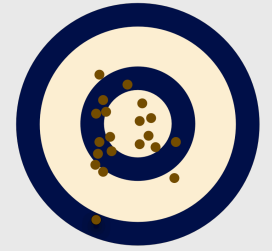
Max Num of Team Members: 7

Dynamic Team Generation:

Invert Group Analysis: None

Save Exit

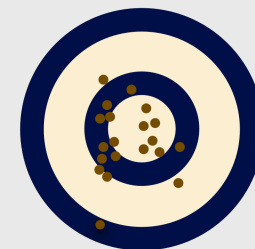
DOWNLOADING A CHILD MATCH



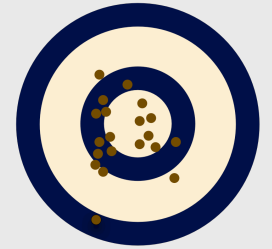
- DEMO: Download from the Welcome Screen
 - Alternatively: 'File' -> 'New Match' -> 'Download a Virtual Match Child'
- May only download a VM Child once.
 - Parent may add the same Orion account multiple times to a VM.
- Can not download after the End Date.
- Have until 2 days after the End Date to upload results.
- Distributed Stat Office: VM Parent has no control over the VM children.



REPORTING SCORES TO CMP FROM A VIRTUAL MATCH

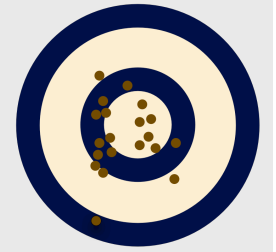


- Problem Background: Match Director has a competition with multiple locations. Common with EIC or JO State Championships.
 - Want a single online result list.
 - Want to report scores as a single match.
 - But can't report scores from a VM to CMP.
- Solution: Create two matches.
 - Create a Virtual Match for purpose of a unified online result.
 - Create a second match, not to be listed online, to manually merge results and use it to report scores to CMP.

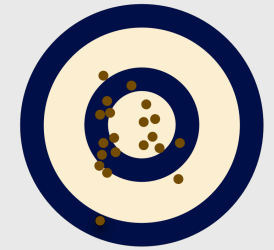


LEAGUE ADMINISTRATION

- Creating a League
- Adding Teams to a League
- Creating the Schedule
 - Automated Round Robin
 - Manually adding games
- Releasing Games
- Declaring the Winner
- Game Recap



COACHING ANALYSIS

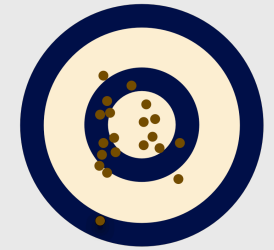


REVIEWING TEST ANSWERS

- Assign the Master Answer Sheet to a participant (which could be a coach).
- Individual Score Sheet, for that athlete, will list what percent each question's answer was answered.
- Can help identify general knowledge deficiencies in your team.

Master Answer Sheet

Question 1: A=>	A 83.3%	B 8.3%	C 0.0%	D 0.0%	E 0.0%	NA 8.3%
Question 2: B=>	A 0.0%	B 91.7%	C 0.0%	D 0.0%	E 0.0%	NA 8.3%
Question 3: C=>	A 0.0%	B 0.0%	C 91.7%	D 0.0%	E 0.0%	NA 8.3%
Question 4: D=>	A 0.0%	B 0.0%	C 8.3%	D 83.3%	E 0.0%	NA 8.3%
Question 5: E=>	A 0.0%	B 0.0%	C 0.0%	D 8.3%	E 83.3%	NA 8.3%
Question 6: A=>	A 83.3%	B 0.0%	C 0.0%	D 8.3%	E 0.0%	NA 8.3%
Question 7: A=>	A 33.3%	B 50.0%	C 0.0%	D 0.0%	E 8.3%	NA 8.3%
Question 8: C=>	A 0.0%	B 0.0%	C 83.3%	D 0.0%	E 8.3%	NA 8.3%
Question 9: D=>	A 8.3%	B 0.0%	C 0.0%	D 83.3%	E 0.0%	NA 8.3%
Question 10: E=>	A 8.3%	B 0.0%	C 0.0%	D 0.0%	E 83.3%	NA 8.3%
Question 11: A=>	A 83.3%	B 8.3%	C 0.0%	D 0.0%	E 0.0%	NA 8.3%
Question 12: B=>	A 0.0%	B 83.3%	C 0.0%	D 0.0%	E 0.0%	NA 16.7%
Question 13: C=>	A 0.0%	B 0.0%	C 91.7%	D 0.0%	E 0.0%	NA 8.3%
Question 14: D=>	A 0.0%	B 0.0%	C 8.3%	D 83.3%	E 0.0%	NA 8.3%
Question 15: E=>	A 0.0%	B 0.0%	C 0.0%	D 8.3%	E 83.3%	NA 8.3%
Question 16: E=>	A 50.0%	B 0.0%	C 0.0%	D 0.0%	E 41.7%	NA 8.3%
Question 17: A=>	A 33.3%	B 50.0%	C 0.0%	D 8.3%	E 0.0%	NA 8.3%
Question 18: C=>	A 0.0%	B 0.0%	C 83.3%	D 0.0%	E 8.3%	NA 8.3%
Question 19: D=>	A 8.3%	B 0.0%	C 0.0%	D 83.3%	E 0.0%	NA 8.3%
Question 20: E=>	A 8.3%	B 0.0%	C 0.0%	D 0.0%	E 83.3%	NA 8.3%
Question 21: A=>	A 83.3%	B 8.3%	C 0.0%	D 0.0%	E 0.0%	NA 8.3%
Question 22: B=>	A 0.0%	B 91.7%	C 0.0%	D 0.0%	E 0.0%	NA 8.3%
Question 23: C=>	A 0.0%	B 0.0%	C 91.7%	D 0.0%	E 0.0%	NA 8.3%
Question 24: D=>	A 0.0%	B 0.0%	C 8.3%	D 83.3%	E 0.0%	NA 8.3%
Question 25: E=>	A 0.0%	B 0.0%	C 0.0%	D 8.3%	E 83.3%	NA 8.3%



IN-PROGRAM ANALYSIS

Shot Group Analysis is now internal to Orion

Click (or double click) on a score to see the analysis.

Shot Group Form
Shroyer, Sonny K (3110)
Standing: 70 - 0

Group Size 450.8 mm²
Group Center (9.2, 2.2), r=9.43 mm
Roundness 1.3

Orion: Match2014Feb11 BB Test

File Database Match Result Center Tools Help

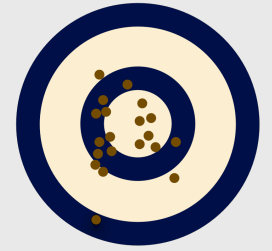
Dashboard Shooter Database Match Competitors Match Teams Match Scoring Match Results Analysis

Ranked Results
Individual - All Update Results Print Results

Individual Score Sheets
Print Individual Results

Include Coach, Team, and Demographics on Printout
 Include Shot Group Analysis
 Include Final

Rank	Participant	Prone	Standing	Sitting	Kneeling	Test	Individual
1	Shroyer, Sonny K (3110)	87 - 3	70 - 0	87 - 0	88 - 2	66	398 - 5
2	Denver, Christopher (3111)	82 - 2	78 - 0	76 - 0	73 - 0	0	309 - 2
3	Duncan, David P (3112)	0 - 0	0 - 0	0 - 0	81 - 1	88	169 - 1
4	McKenzie, Patrick M (3113)	0 - 0	0 - 0	0 - 0	0 - 0	77	77 - 0
5	Simmons, Amanda T (105)	0 - 0	0 - 0	0 - 0	0 - 0	55	55 - 0
6	Webb, Daniel I (104)	0 - 0	0 - 0	0 - 0	0 - 0	44	44 - 0

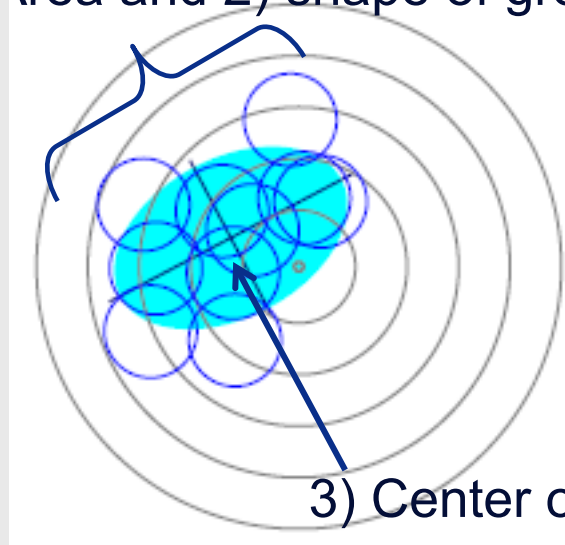


GROUP ANALYSIS THEORY

- Score is only one metric, and often a poor one, describing a shooter's performance.
- Orion's alternative: Analyze the shot group for more meaningful performance-oriented metrics.

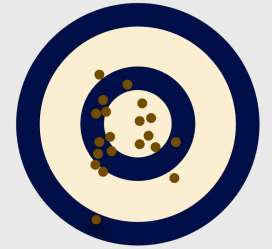
Example: A shooter's score may be derived from:

1) Area and 2) shape of group.



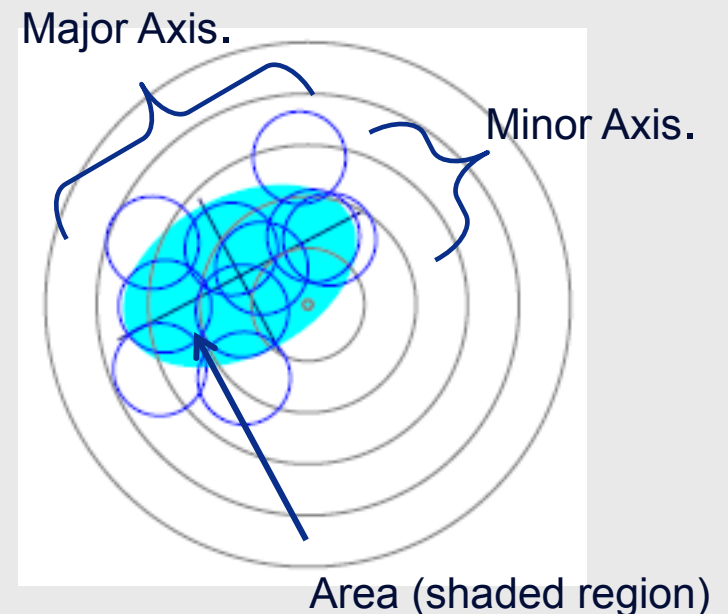
3) Center of group.

With each component describing certain characteristics about the shooter's performance.

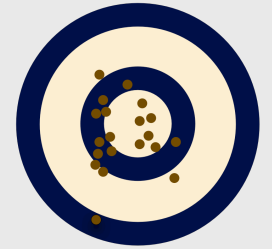


AREA AND SHAPE OF GROUP

- Hypothesis: Group area is a better metric to measure a shooter's performance because it is strongly influenced by the shooter's inner position. The shape of the group is influenced by the shooter's exterior position.
- Area measured in mm^2 .
 - Statistical representation of the shot group.
 - Modeled after a bivariate normal distribution.
- Roundness is a ratio.
 - 1.0 is perfectly round.

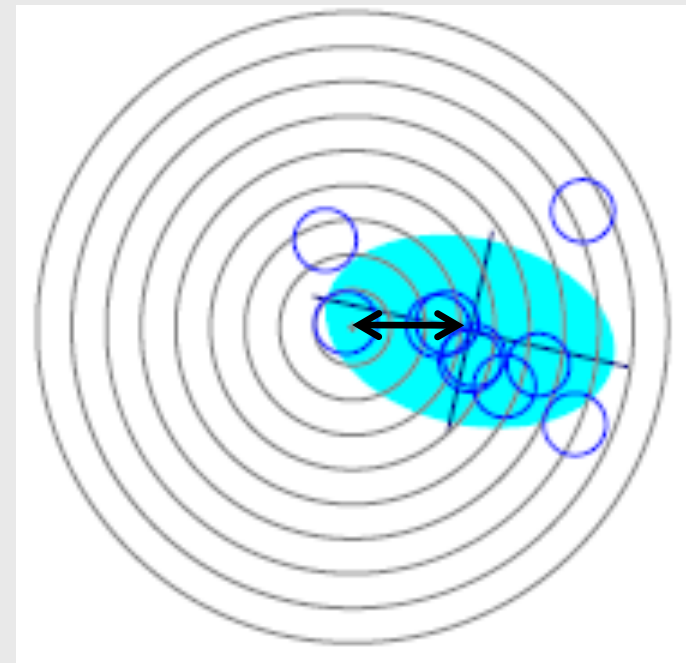


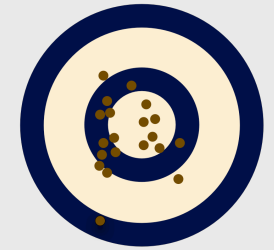
$$\text{Roundness} = \frac{\text{Major axis}}{\text{Minor axis}}$$



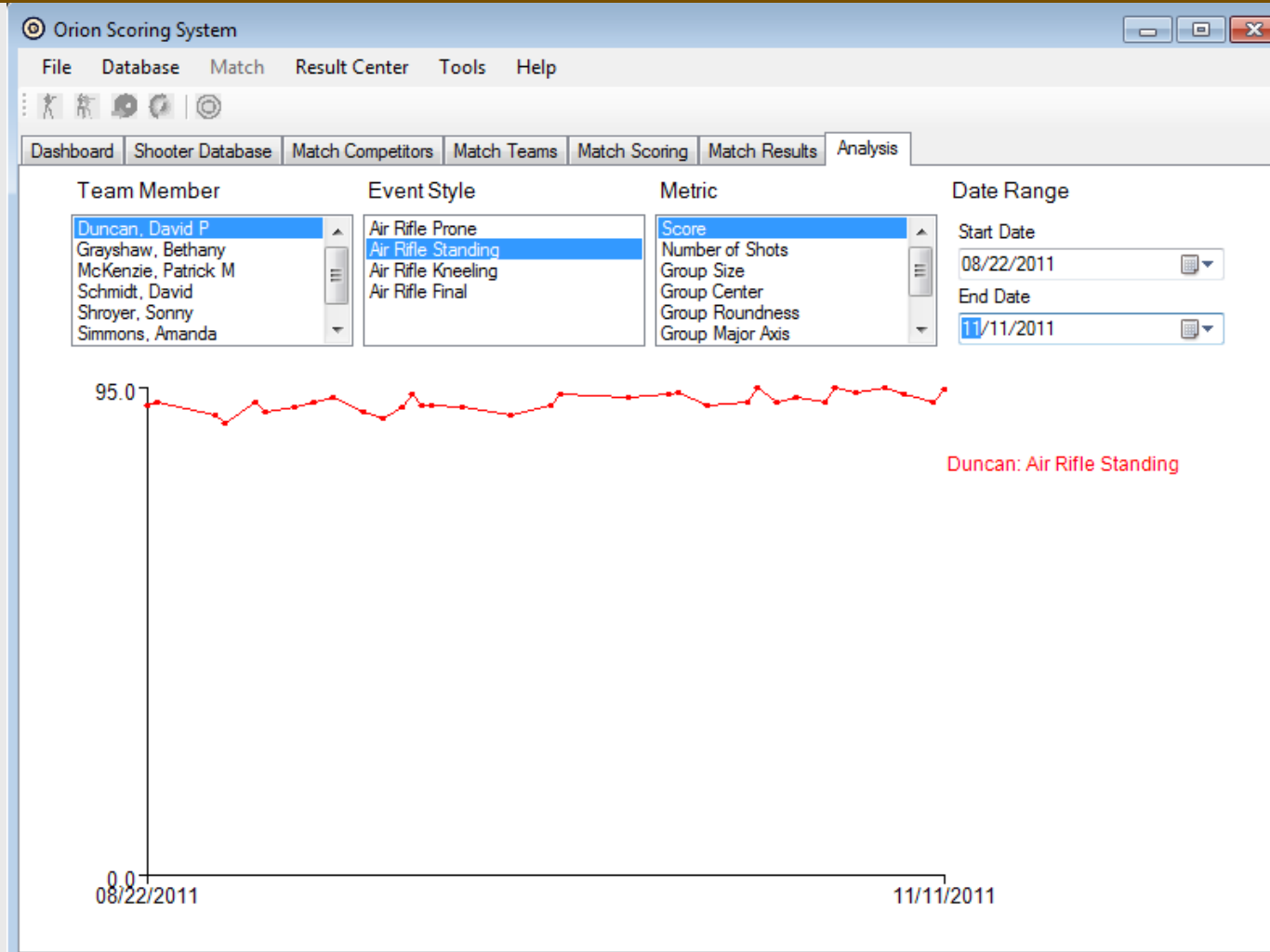
CENTER OF GROUP

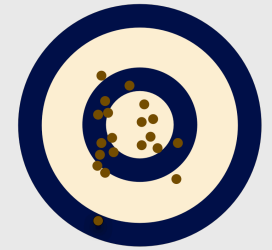
- Distance from center of aiming bull to center of group. Measure in mm.
- For new shooters, learning to center their group is a major challenge.
- Experiment: Tell a new shooter his or her only goal is to center their group. Will force them to:
 - Call their shots; pay more attention to sight picture.
 - Correlate shot call to shot placement to make sight adjustments.





ANALYSIS ENGINE





QUESTIONS



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