



COLORADO

Division of Water Resources

Department of Natural Resources

2014 Annual Report



Water.....Seven Divisions.....One State



Our Mission

- To provide competent and dependable distribution of water in accordance with statutes, decrees and interstate compacts.
- To ensure public safety through safe dams and properly permitted and constructed water wells.
 - To maintain and provide accurate and timely information concerning water.
- To promote stewardship of all human, fiscal and natural resources.
- To serve the public through the generation of creative solutions to problems.
- To help the public understand complex water issues.
- To promote stability in the use of the state's limited water resources.
- To apply modern technology to its greatest advantage.

2014 In Review

Following the tremendous rains in late 2013 the water supply across the state was generally better than we have seen for a long time. DWR was busy replacing the multitude of gages that were destroyed in the South Platte floods, reviewing diversion dam reconstruction projects, and analyzing the impact of the floods on the river corridors in 2014.

An audit of our Dam Safety Branch was completed in 2014. The auditors identified issues DWR was aware of and now is in the process of correcting.

DWR has held many meetings with interested water users and water attorneys to discuss litigation concerns and the role of DWR in that process. Some recent court case outcomes could lead to legislative changes to clarify the laws.

Interstate litigation increased in 2014 with Texas filing suit against New Mexico (and Colorado) on Rio Grande issues. But in the Republican River Basin the U.S. Supreme Court accepted the report of the Special Master...resolving some contentious issues in that basin.

Remaining committed to operating an efficient and effective agency, in 2014 I initiated LEAN reviews of certain DWR processes. These reviews are designed to streamline procedures allowing us to better serve the public. We also initiated reviews of our rules and regulations to assure those too are updated and appropriate.

Finally, with the hiring of a data manager in 2014, DWR seriously examined how we respond to the technological changes that seem to occur everyday. DWR will take advantage of new technological advancements to make our workforce more efficient, better serve our citizens, and better communicate timely information and data to water users across the State in the future.

Dick Wolfe, State Engineer for Colorado

2014 Annual Report

Dam Safety Branch



- In Colorado the Dam Safety Branch assures public safety by requiring proper construction and maintenance, performing rigorous design reviews, conducting inspections, and by responding quickly to incidents. Those efforts paid off with no dam failures in 2014.
- During 2014 Dam Safety had:
 - 49 dams either new or undergoing modification that required design or construction review by Dam Safety Branch,
 - 14 ‘incidents’ but no failures or property damage.
 - Conducted over 680 inspections
 - Received over 117 updated Emergency Action Plans.
- Dam Safety also participated in an audit to assure the branch is operating effectively. The results of that audit confirmed efficient operations and suggestions for future operations that corresponded well to the branches existing planned adjustments.

Colorado has almost 2000 jurisdictional dams!

Interstate Compacts 2014



• Rio Grande Litigation

- Special Master appointed by the Supreme Court
- Motions to dismiss being considered
- Motions to join being considered
- Potential Endangered Species Act litigation

• Republican River

- Initiated amendments to the Republican Basin metering rules
- The Compact Compliance Pipeline delivered water
- Bonny Reservoir remained empty
- Numerous negotiations occurred with Nebraska & Kansas

• Colorado River

- Remote sensing consumptive use pilot studies initiated
- Additional climate stations needs analyzed
- Powell/Mead Equalization operations
 - 2014 7.23 MAF year
 - 2015 Balancing (8.23-9 MAF)
- California drought highlights basin issues
 - Conservation, sustainability, and groundwater use

Colorado has:

- *Nine Compacts*
- *Two Equitable Apportionment Decrees*
- *Two Agreements*

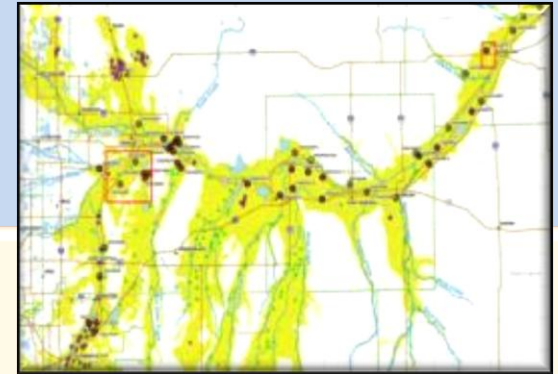
Hydrography - Satellite Monitoring



- **Streamflow conditions website improvements**
 - Development of ability to process cellular modem data for inclusion on the website
 - Rating extensions by indirect methods and improved documentation of data sources (metadata) for emergency management uses
 - Development of, or incorporation into another, map-based solution such as Colorado Information Marketplace.
- **Satellite Monitoring System cooperator contract guidelines**
 - Develop a more efficient invoicing program
 - Develop standards for cooperator cost calculations including appropriate fees and reimbursable costs
 - Develop guidelines for acceptance of new gages and those currently or formerly operated by USGS
- **Well Metering program tools and program guidance**
 - Implementation/expansion of Activities Manager Module in the Hydro-Base Data Management Console
 - Recommendations for use of Activities Manager Module for Surface Water administration and Smart Act metric capture
 - Rules/Regulations for Certified Well Tester Program

Colorado has almost 600 gages collecting real time data!

Hydrogeologic Services

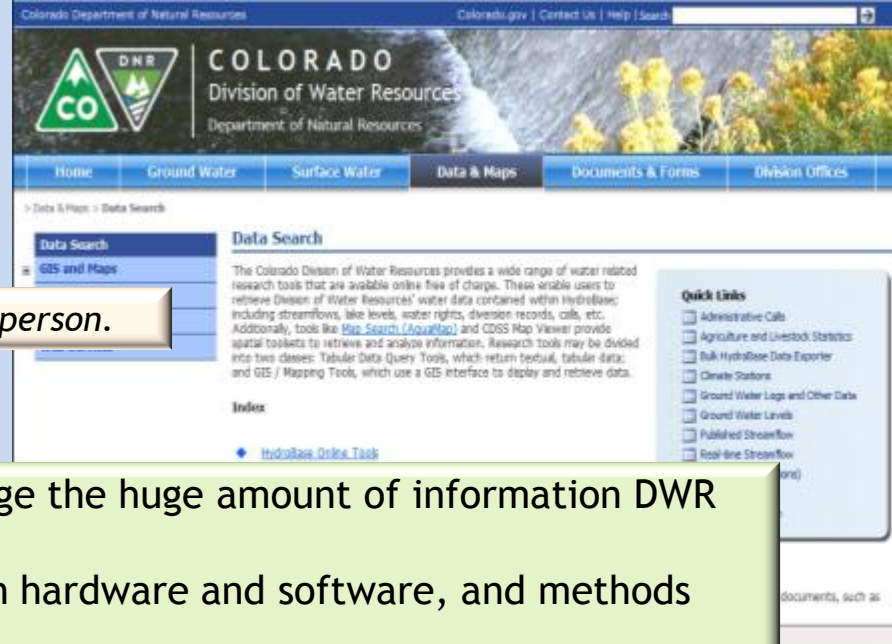


- The branch investigated high groundwater issues in the Sterling and Gilcrest/Lasalle areas and mapped aquifer stratigraphy in the Cheyenne Basin.
- In 2014 the branch made 258 aquifer determinations, determined aquifer properties for 15 areas, and provided support for geothermal issues.
- Working with the Colorado Oil & Gas Conservation Commission the branch provided input on over 30 Underground Injection Control Reviews
- As part of Colorado's Groundwater Monitoring Program over 1,236 wells were measured and data stored in DWR databases in 2014
- The public safety oriented Well Inspection Program conducted over 850 well construction inspections. The program also investigated 27 complaints or violations of the well construction rules.
- In 2014 the branch made many nontributary initial determinations for produced water petitions, water court applications, and for State Engineer Policy 2010-4 petitions.
- Working with the Board of Examiners the branch weighed in on 107 well construction variances.

Colorado has extremely complex geology!

Water Information Branch

Colorado water data is available on-line and/or in person.

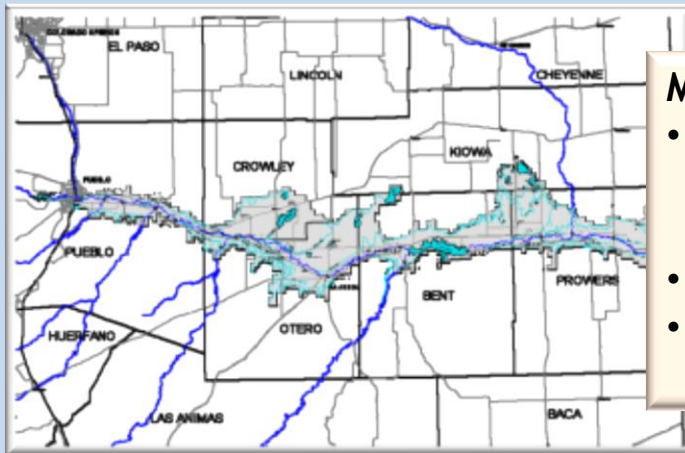


- The Water Information Branch helps DWR manage the huge amount of information DWR collects and distributes to the public.
- Currently developing a vision for data collection hardware and software, and methods that will increase our field staff efficiency.
- Upgrading information availability to the public via electronic documents and our imaging system
 - Improved web access to records
 - Adding Division office data
 - Adding Hydrographic data
 - Adding Dam Safety Emergency Action Plans
- Beginning consolidating our GIS resources with our tabular data systems (Hydrobase)
- Managing application development in 2014 to provide better, faster, more efficient tools serving information to users and the public
 - Colorado data marketplace
 - Online water level data submittal tools
 - CDSS Map Viewer
 - Administrative Calls Editor tools

Water Supply and Modeling

Water Supply:

- Continued HB12-278, South Platte Study investigations
- Almost 900 water court applications reviewed in 2014
- Over 5300 groundwater use permit applications
- In 2014 the Water Supply Branch worked on policies, written instructions and orders to help guide administration of water rights.
- A best practices document on Consumptive Use was drafted and public comment received.
- The Branch was very involved in providing information to the legislature regarding proposed legislation.



Modeling

- SPDSS contract signed 2014
 - Improve functionality and provide more tools
- Planning for development of the ArkDSS
- Upgrading the RGDSS
 - Developing Response Functions

Water Supply Branch answers thousands of inquiries each year.

South Platte River Basin, Water Division No. 1

- Focus on recovery from dramatic floods of 2013.
- Of the 223 private structures and 23 stream gages that were damaged or destroyed in 2013, 203 private structures operational along with 20 stream gages by end of Irrigation Year 2014.
- South Platte Well Measurement Rules were finalized in Water Court to assist in administration and data collection.



St. Vrain at Lyons Gauge

- Republican River Basin Groundwater Measurement Rules administration program continued to progress towards well inventory completion within the scope of the rules.
- Continue to participate in problem solving concerning short and long term solutions to high ground water issues in Sterling and La Salle/Gilcrest areas.

Division 1 has streams that flow into Wyoming, Nebraska, and Kansas!

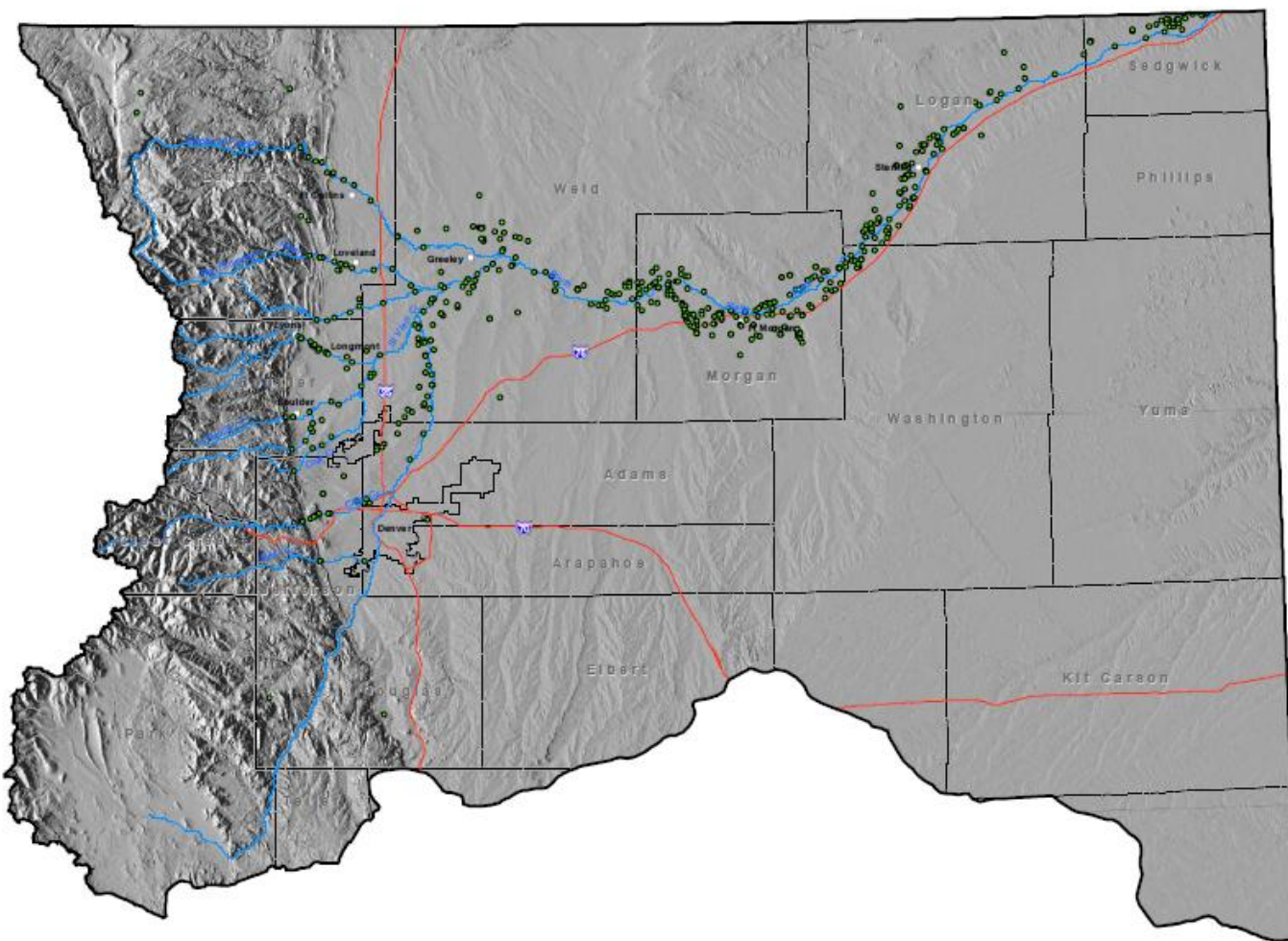
Division No. 1 Installing More Telemetry & Data Loggers



Division 1 is working with Northern, Metro and the Lower South Platte via CWCBS Basin Round Table grants to extend the telemetry and data gathering network. In 2009, there were 99 measurement sites that had data-loggers with telemetry and an additional 53 sites with data loggers. Since 2009 water users have installed with telemetry on 30 sites and data-loggers on an additional 290 sites. In 2015, 112 sites will have data-loggers installed and 67 sites will add telemetry.

Near real time data allows for efficient water administration. Commissioners can readily determine if correct flow rates are being delivered and quickly decide if an exchange is possible. This also allows for the administration of more sites with same number of people.

One of the first gages in Colorado was in the South Platte Basin!



Colorado has been measuring water since the 1870's!

Existing Data Logger and Telemetry Sites

Map Key

- Data Logger/Telemetry Site



0 9 18 Miles
1" = 18 Miles



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Arkansas River Basin, Water Division No. 2

- The 2013-2014 water year finally came out of the extraordinary and exceptional drought categories in existence since 2011 to arrive at near average conditions. With the exception of the far south east corner of the state, it was welcome relief from drought conditions.
- Winter storage accumulation at the end of the Pueblo Winter Storage Program storage period on March 14, 2014 was 100,377.85 acre-feet, which was 149% of that stored the previous year and 73.65% of the previous 20 year average.
- Overall irrigation well pumping in 2014 was nearly at the average since Colorado's Amended Use Rules for Well pumping went into effect in 1996.
- Colorado remains in compliance with the requirements of the Arkansas River Compact with the Ten-year Accounting of Depletions and Accretions to Usable Stateline Flow for the period of 2004-2013 showing a credit of 58,118 acre-feet.

Colorado has legally recognized groundwater influences since the 1960's!



Division No. 2: Lease-fallowing (House Bill 2013-1248)

- Catlin Pilot Project looking for approval for 2015 Operations
- Lower Ark Valley WCD persistence pays off!
- New innovative plan design and review process
- Lease Fallow computer modeling tool developed
- Will allow water from Catlin Canal shares to generate approx 470 AF to be used by Town of Fowler, City of Fountain & Security Water District via exchange



Colorado has encouraged fallowing and conservation programs to save water in many of its basins!

Rio Grande Basin, Water Division No. 3



Radar Gauge, South Fork of Rio Grande

The first USGS stream gage was installed on the Rio Grande!

- The Basin faced below average snowpack and streamflow conditions for an unprecedented sixth year in a row.
- 2014 experienced a peak of only 81% of average, just slightly better than 2013.
- As a whole, Colorado was close on its Rio Grande Compact delivery obligations for 2013, with a credit of 5,300 acre-feet at the end of the year.
- The unconfined aquifer continues at a very low level but for the first time in 5 years it actually gained approximately 40,000 acre-feet of water. Still contains 1,200,000 acre-feet less than 1976.
- In the aftermath of the West Fork fire that resulted in total burned area in excess of 110,000 acres in the Upper Rio Grande, the Division installed four additional stream flow gages to monitor possible flash flood events that may result.
- Drafting of Rules and Regulations concerning the use of ground water in Division 3 continued with the assistance of a 56 member advisory committee. Major progress was made and formal promulgation will occur in 2015.
- *Texas v. New Mexico and Colorado* (Original #141) continues before the US Supreme Court with issues centering around groundwater pumping below Elephant Butte Reservoir.

Gunnison River Basin, Water Division No. 4

- Snowpack peaked at 106% of median compared to 68% and 78% during 2012 and 2013 respectively.
- The April-through-July inflow to the Aspinall Unit (Blue Mesa, Morrow Point, and Crystal Reservoirs) was exceptional at 128 percent of the 30-year median, categorizing the season as a “moderately wet” year for storage management purposes under the Record of Decision for the operation of the Aspinall Unit.
- Inflow to the Aspinall Unit improved from 32% of normal (2012, second lowest inflow of record) to 52% of normal.



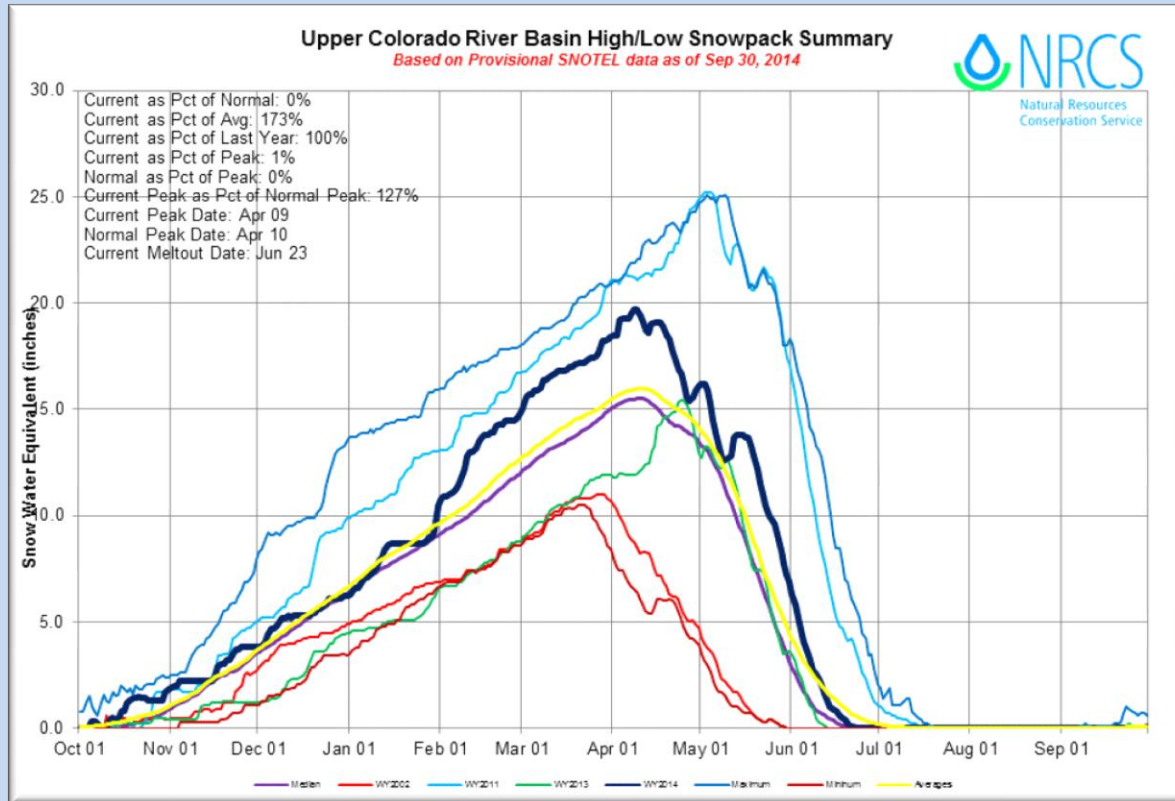
•As a result of heavy monsoon rain from July through October, many reservoirs were able to store water in priority before the reservoir fill season began on November 1, which helps with the 2015 irrigation season’s drought tolerance.

•Two hydroelectric generating stations were installed on the South Canal. The units provide 3.5 and 4 Megawatts. Installation was in cooperation with the Delta-Montrose Electric Association.

The Gunnison River runs through the famous Black Canyon National Park!

South-Canal Hydroelectric Project
Powerhouse & Penstock Drop Structure

Colorado River Basin, Water Division No. 5



- Though the snowpack peak for 2014 was well below the fantastic peak of 2011, it was a vast improvement over 2013.
- The Green Mountain Reservoir Administration Protocol was signed to replace the Interim Fill Policy, ushering in new chapter in the administration of the Blue River Decrees.
- Coordinated Reservoir Reoperations for Endangered Fish Recovery Program were not conducted in 2014 due to flooding concerns.
- Division testing reliance on filing of consultation reports with the Water Court. During 2014 no Statements of Opposition were filed in Water Court.

The headwaters of the Colorado River are in Colorado!

Yampa and White River Basins, Water Division No. 6

- Above average snow pack in 2014 welcome relief to below average snow pack and stream flows in 2013.
- Trout Creek above the Orno Ditch was designated as over-appropriated.
- Most water users complied with Division orders to have acceptable diversion structures during 2014. No diversions occurred by structures with no headgate and/or measuring device.
- Colorado was in compliance with *Nebraska v. Wyoming* as none of the limits established by the decree were exceeded.
- Hay meadow grass lysimeter project continues to assist in determining irrigated hay meadow consumptive use and its relationship to local weather conditions.
- A modest 1,578 a.f. of water was released from Elkhead Creek Reservoir for the Upper Colorado River Endangered Fish Recovery Program.



South Fork of the White River

Division 6 also includes the North Platte Basin!

Animas & La-Plata River Basins, Water Division No. 7



Flume & gauge house, Jackson Gulch Outlet Canal, Mancos, CO

Water Division 7 has the Animas La Plata Compact, Colorado's youngest interstate compact!

- While 2014 was a better snow pack year than 2013, the trend of declining snow packs continued resulting in challenging surface water administration.
- 120 administrative calls were placed on 18 different stream systems.
- Long Hollow Dam and Reservoir was completed in October of 2014. The compact pool of 300 acre-feet will assist in La Plata River compact compliance.
- Ridges Basin Reservoir remained full for 2014 to supply water for the Animas La Plata Project.

2015 & Beyond

- Continue to use new technology to assist in more efficient & effective administration
- Explore innovative alternatives to protect Colorado's water under existing interstate compacts and decrees
- Utilize LEAN concepts to improve DWR's processes and structure.
- Continue to provide the preeminent Dam Safety Program in the United States
- Usher in a new era of conjunctive use & administration throughout the state



Childhood Memories
Remember...
Playing in the Water
Before Fighting
Over It?



Pioneer Nat'l Bank float, 2014 Wray Daze parade, Wray, CO



For more records, information, and additional field office and branch reports please visit website:

<http://water.state.co.us/Home/Pages/default.aspx>